NATIONAL BISON RANGE
NINEPIPE AND PABLO REFUGES
MOIESE, MONTANA
NARRATIVE REPORT - 1970

Refuge National Bison Range Mont

Months of to to 19 70

(1) Species	(2) Density	(3 You Produ	ng ced	(4) Sex Ratio	R	(5) emova	ls	(6) Total	(7) Remarks	
Common Name	Cover types, total acreage of habitat		Number broods obs'v'd.	Estimated Total	Percentage	Hunting	For Restocking	For Research	Estimated number using Refuge	Pertinent information not specifically requested. List introductions here.
Schardson Blue Grouse	2,000 a. conifer	forece buel of be dilate	end a liture all a serve	ecute of the orang	do of as doing s gaidinever a dend type a seldisson en	a ce abor sig.	dos. (sirse) "bÿe say s	bos.	50	
ussed Grouse	300 a. streamk	ttom	gmne : Vaciti	vlja Jed	do represent bloods assu	ndna 120	op h	o en elcau	5	
Grouse	12,000 a. mixed	Fiendo	mogu i	east	, bnouborq p	grow Chao:	to ta	dansi Ostor	10	2 birds observed several times this spring
ing-necked Phesant	2,000 a. grass & streembottom	the and	* 500g	ma h	de of gline	Ella Ella	salid Va 11	gs na selt	100	(A) SEE RATIO
hukar Partridge	6,000 a. mixed	during	bevon	T VIX	pateu dase	2.1	dava	Ledos	30	(9) BENDVALSE
ray Partridge	12,000 a. Nixed	edd po	galrayl al ga	e ybr	eing the rei	-126	min il id de	tobs	700	nLagor (a)
Also	covered in survey.	sers b	n noti	elute	og salkrietsk	at to	nau i	oride	ecsolhs]	PRIMARS (V)
	belgenper	cally	Licegy	. dotte	neldsweinb	\$1100	Live	redo	Anclude o	
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	The state of the state of									
			- 1							
	1	Merch.					1			

INSTRUCTIONS

Form NR-2 - UPLAND GAME BIRDS.*

(1)	SPECIES:	Use correct common name.
(2)	DENSITY:	Applies particularly to those species considered in removal programs (public hunts, etc.). Detailed data may be omitted for species occurring in limited numbers. Density to be expressed in acres per animal by cover types. This information is to be prefaced by a statement from the refuge manager as to the number of acres in each cover type found on the refuge; once submitted, this information need not be repeated except as significant changes occur in the area
		of cover types. Cover types should be detailed enough to furnish the desired information but not so much as to obscure the general picture. Examples: spruce swamp, upland hardwoods, reverting agriculture land, bottomland hardwoods, short grass prairie, etc. Standard type symbols listed in Wildlife Management Series No. 7 should be used where possible. Figures submitted should be based on actual observations and counts on representative sample areas. Survey method used and size of sample area or areas should be indicated under Remarks.
(3)	YOUNG PRODUCED:	Estimated number of young produced, based upon observations and actual counts in representative breeding habitat.
(4)	SEX RATIO:	This column applies primarily to wild turkey, pheasants, etc. Include data on other species if available.
(5)	REMOVALS:	Indicate total number in each category removed during the report period.
(6)	TOTAL:	Estimated total number using the refuge during the report period. This may include resident birds plus those migrating into the refuge during certain seasons.
(7)	REMARKS:	Indicate method used to determine population and area covered in survey. Also include other pertinent information not specifically requested.

^{*} Only columns applicable to the period covered should be used.

Refuge Mational Bison Range Months of May to

to Sept.

, 19 70

(1) Species	(2) Density	(3 You Produ	ng	(4) Sex Ratio	R	(5) emova	ls	(6) Total	(7) Remarks	
Common Name	Cover types, total acreage of habitat	Acres per Bird	Number broods obs'v'd.	Estimated Total	Percentage	Hunting	For Restocking	For Research	Estimated number using Refuge	Pertinent information not specifically requested. List introductions here.
Richardson Blue Grouse	2,000 a. comife	enough eneral land, h ed in	taile the lture s lis	40	ypes should uch as to ob reverting a ndard type s	ods,	Cor not ardwo	ypes, n but and l rie,	80	
Ruffed Grouse	300 a. Stream bottom	ubmitte e areas d under	ures sampi dicata		re possible. on represent reas should	edm	used d cea		Mo. 7 shore observations also of sa	
Columbia Shurp- tailed Grouse	12,000 a. mixed	observa	noqu	08.5 BC	g produced, ng habitat.	youn eeds	lo n	odmuci	12(2)	Two observations of 2 birds this period
Ring-necked Pheasant	2,000 a. grass & stream bottom		key,	75	llw of wiles		dies f avs		175 ddo	(4) SEX RATIO:
Chucker Part- ridge	6,000 a. mixed				each catego	nt w	dmurz	otal	Indicate t	(5) REMOVALS:
Gray Partridge	12,000 a. mixed	the rep	gairw ai 170	800	eing the ref Lus those mi	er u	imur: Lid Ji	total si,der	Estimated	(6) TOTAL:
Also	covered in survey.				determine po information	ಂತ	usec	ethod	a edacibal	(7) REMARKS:
				pesu	ed blooms be	nevo	dod o	teq s	it of eldes.	* Only columns appli
									/	
1613	3				a T				4	

Matienel Sheen Range

3-1752 Form NR-2 (April .)6

INSTRUCTIONS

Form NR-2 - UPLAND GAME BIRDS.*

Signa

(1) SPECIES:	Use correct common name. (1) William (2) William (3) William (4) William (5) William (6) William (7)
Pertinent information not specifically requested. Inst introductions here.	Applies particularly to those species considered in removal programs (public hunts, etc.). Detailed data may be omitted for species occurring in limited numbers. Density to be expressed in acres per animal by cover types. This information is to be prefaced by a statement from the refuge manager as to the number of acres in each cover type found on the refuge; once submitted, this information need not be repeated except as significant changes occur in the area
	of cover types. Cover types should be detailed enough to furnish the desired information but not so much as to obscure the general picture. Examples: spruce swamp, upland hardwoods, reverting agriculture land, bottomland hardwoods, short grass prairie, etc. Standard type symbols listed in Wildlife Management Series No. 7 should be used where possible. Figures submitted should be based on actual observations and counts on representative sample areas. Survey method used and size of sample area or areas should be indicated under Remarks.
(3) YOUNG PRODUCED:	Estimated number of young produced, based upon observations and actual counts in representative breeding habitat.
(4) SEX RATIO:	This column applies primarily to wild turkey, pheasants, etc. Include data on other species if available.
(5) REMOVALS:	Indicate total number in each category removed during the report period.
(6) TOTAL:	Estimated total number using the refuge during the report period. This may include resident birds plus those migrating into the refuge during certain seasons.
(7) REMARKS:	Indicate method used to determine population and area covered in survey. Also include other pertinent information not specifically requested.

^{*} Only columns applicable to the period covered should be used.

TANK NEW YORK OF SERVICE STATES							
Refuge National Bison	Range Months	of	September	to	December ,	19	70

									ME BIRDS.*	Form NH-2 - UPLAND GA
(1) Species	(2) Density		(3 You Produ	ng	(4) Sex Ratio	R	(5) emova	ls	(6) Total	(7) Remarks
Common Name	Cover types, total acreage of habitat	Acres per Bird	Number broods obs'v'd.	Estimated Total	Percentage	Hunting	For Restocking	For Research	Estimated number using Refuge	Pertinent information not specifically requested. List introductions here.
Richardson Blue Grouse	2,000 a. conifer	enough eneral land, l ed in l	tailed the g lture	oe de scure gricu gricu gricu	pes should uch as to ob reverting a ndard type s	0	0	0	70	
Ruffed Grouse	300 a. stream- bottom	ubmitta se areas d under		Fig stive	re possible. on represent reas should	0	0	ld bi		
Columbian Sharp- tailed Grouse	12,000 a. mixed	observi	uodu	08390	tbecuborq g				10(?)	No observations this period
ling-necked Pheasant	2,000 a. grass and stream bottom				le.	0	0	0	350	Heavy influx from outside refuge due to hunting pressu:
Chukar Partridge	6,000 a. mixed	the rep	uring	b egg	sing the ref	0		0	30	ALATOI (a)
Fray Partridge	12,000 a. mixed	sers b	is noh	taluc	determine po	0	0	0	1,200	(V) REMARKS:
				nsed	ed bluods be	ievo	dod c	ted a	is os eldec	* Only columns appli
1613										

Porm NR-2 (April)6)

Columbian Sharp

Form NR-2 - UPLAND GAME BIRDS.*

(1) SPECIES:

Use correct common name.

(2) DENSITY:

specifically requested.

Applies particularly to those species considered in removal programs (public hunts, etc.). Detailed data may be omitted for species occurring in limited numbers. Density to be expressed in acres per animal by cover types. This information is to be prefaced by a statement from the refuge manager as to the number of acres in each cover type found on the refuge; once submitted, this information need not be repeated except as significant changes occur in the area of cover types. Cover types should be detailed enough to furnish the desired information but not so much as to obscure the general picture. Examples: spruce swamp, upland hardwoods, reverting agriculture land, bottomland hardwoods, short grass prairie, etc. Standard type symbols listed in Wildlife Management Series No. 7 should be used where possible. Figures submitted should be based on actual observations and counts on representative sample areas. Survey method used and size of sample area or areas should be indicated under Remarks.

Refuge National Bison Range

(3) YOUNG PRODUCED:

Estimated number of young produced, based upon observations and actual counts in representative breeding habitat.

(4) SEX RATIO:

This column applies primarily to wild turkey, pheasants, etc. Include data on junes and other species if available.

(5) REMOVALS:

Indicate total number in each category removed during the report period.

(6) TOTAL:

Estimated total number using the refuge during the report period. This may include resident birds plus those migrating into the refuge during certain seasons.

(7) REMARKS:

Indicate method used to determine population and area covered in survey. Also include other pertinent information not specifically requested.

^{*} Only columns applicable to the period covered should be used.

BIG GAME

Refuge National Bison Range

Calendar Year 1970

(1) Species	(2) Density	(3) Young Froduced		Ren	10 A 6	ls	(5) Losses			(6) Introductions			Fstima Total I Popula	(8) Sex Ratio	
Common Name	Acreage of Habitat	Number	Hunting	For Re- stocking	Sold	For Research	Predation	Disease	Winter Loss	Number	Source	s a C	At period of Greatest use	As of Dec.	M:F
Bison - Was Inc.	15,600 a. grassland	69	13	orms vpes	80	this	d.	101	8*	ono	refuge: nees occi		402	314	84:100
Elk trods	5,000 a. conifer & grass		oun B B	os miju	sve not	2*	dot bod	1 (5) (2) (1) 3 (2) (3)	tafe:	derl	h the de	olo	60	57	90:100
Mule Deer	10,000 a. conif, brush &	81		ymbe res	90	d tyr	da:	tail iooi	7	4	Mont. F	&G	321	229	86:100
White-tailed deer	4,000 a. conif, brush, & grass	67 10	.a .asi	7 30	52	2*	iva bad. mos	ad. 1	2	hip 4	Mont. F		221 52	168 48	104:10
Bighorn Sheep	8,000 a. conifer & grass	62	0%ම	tao	fos	2*	42	BOULEY	Intot 2	sta	India	ĺ	174	130	104:10
Antelope Mt. goat	6,000 a. grassland 2,000 a. conifer		let	10	rds tao	2*	30	est 1	sis of		is no dose	ę.	15	(8)	unknow
Texas Longhorn	5 a. pasture	ency from	30	10 s	gu'î:	er ba	5 %	ıdsı	n eds	ola	: Indi	OHS	2 2	(3) 2	-
steer	on the refuge at period of	h species					_		estim abundı		Give Erea	20	TOTAL REFU	(7)	
mort h	och species as determine	females	bms	les	3.02	to as	ná ni	1070	g edit	oda	Abal		SEX BATIC:	(8)	

Remarks: * Buffalo: Losses from various natural causes and accidents - 2 bulls disposed of due to injuries - meat salvaged and donated to schools.

Reported by Robert L. Barber

^{*}Elk, Sheep, Antelope and Goats: 2 each collected for research, meat and skeletons sold or donated to schools.

* Antelope: Heavy fawn losses due to undetermined cause.

15763 E		411			
1970	ISSI		FIRU		

Form M son Hange (June 1945) Refuge National Bison Hange

salvaged and donated to schools.

(8) Sex		(7) Estima Total R	(6)	(5) Lossee In	INSTRUCTIONS	(3) Young	(2) Denetty	(1) Species
Hatio	Form N	IR-3 - BIG G	ME			Produced		
	(1)						deer, white-tailed deer Louisians white-tailed	
M:F	1 (2)	1186	expressed in	acres per ani	mal by cover typ	es. This in	limited numbers. Densit formation is to be prefacted in each cover type	y to be ced by a
84:100	314	402	the refuge: changes occur	once submitted r in the area	, this informati of cover types.	cover types	be repeated except as si should be detailed enough	gnificant gh to fur- mosid
90:100	57	. 00	spruce swamp,	upland hardw	oods, reverting	agriculture	cure the general picture land, bottomland hardwood	ds, short
86:100	829	321	should be use	ed where possi	ble. Figures su	ibmitted shou	ildife Management Serie	servations of
104:10	168				ed under Remarks	3.	nod used and size of sam	beliated White-tailed deer
105:10	(3)	SC	JCED: Estima	ated total num	ber of young pro	duced on refu	SEP OFFI	Bighorn Sheep
104:10	(¥)	REMCVALS:	Indica	ate total numb	er in each categ		luring the year.	
wording	(5)	LCSSES:		e basis of kno category durin		eliable estima	ates indicate total loss	es in jaog .jM
-	\$ (6)	INTRODUCTIO	NS: Indica	te the number	and refuge or a	gency from w	nich stock was secured.	Texas Langhorn
	(7)	TOTAL REFUG POPULATION:	Give t		population of ea and also as of E		n the refuge at period of	19930
1 1 1 2 1	(8)	SEX RATIC:	Indica	ate the percen	tage of males an	d females of	each species as determin	ned from

*Elk, Sheep, Antelope and Goats: 2 each collected for research, meat and skeletons sold or donated to schools. * Antelope: Heavy fawm losses due to undetermined cause.

Reported by Robert L. Barber

3-175	4
Form	NR-
(June	19451

SMALL MAMMA

Refuge Year ending April 30, 1970

(1) Species	Density	ano		(3) ovals		n of	Di	(,0)	(5) Total					
ok of Worth	found in the "Field Bd	equirre use are	ant ine	rel, for curren	quir a în	e yez esen		Share	Trap	oing	Refuge Shipped	Donated		Popula
	Cover Types & Total Acreage of Habitat	Acres Per Animal	Hun ting	Fur Harvest	Predator Control	For Re- stocking	For Re-	Permit Number	Trappers Share	Refuge share	Total Ref Furs Ship	Furs Done	Furs Destroyed	tion
obeat triped Skunk adger eaver ink uskrat ellowbelly Marmot orqupine	10,000 a. grassland 100 a. streambotto 50 a. wetland 2,000 a. mixed 4.000 a.	rent from found fed exc pes sho much a much a found fe, stc should b	typer to the transfer to the t	ss pa s No. actu	erle no b	need type type type type type type type type	attor cove infe infe ods. ods. nages id bi	of the color of th	eds eds eds eal eal ew lan					10 5 45 40 5 10 30 120 40 10 300
famina vrota	ory removed since Aprirefuge by Service Fred g under headingslieted	eds no i	texia	ing t	ing	nelud	t ,TA	wious ye	ad		LS:	WOME	(g) I	
aken by Service use of unprime- ther agencies	Predator Animal Hunte:	ed to me of each re donate	nip lts fu	e ad eq l	f pei ber i iion	ber o l aum condi	Tota	icate th	ren Lad .	UE EO	MOITI	ISPO	(h)	

Indicate inventory method(s) used, size of sample area(s), introductions, and any other pertinent information not specifically requested.

Reported by Robert L. Barber

Year ending April 30.

Form NR-4 - SMALL MAMMALS (Include data on all species of importance in the management program; i. e., muskrats, beaver, coon, mink, coyote. Data on small rodents may be omitted except for estimated total population of each species considered in control operations.)

(1) SPECIES:

Use correct common name. Example: Striped skunk, spotted skunk, short-tailed weasel, gray squirrel, fox squirrel, white-tailed jackrabbit, etc. (Accepted common names in current use are found in the "Field Book of North American Mammals" by H. E. Anthony and the "Manual of the Vertebrate Animals of the Northeastern United States" by David Starr Jordan.)

Form NR-

INTERIOR - - PORTI AND OREGON

(2) DENSITY:

OI

Applies particularly to those species considered in removal programs. Detailed data may be omitted for species occurring in limited numbers. Density to be expressed in acres per animal by cover types. This information is to be prefaced by a statement from the refuge manager as to the number of acres in each cover type found on the refuge; once submitted, this information need not be repeated except as significant changes occur in the area of cover types. Cover types should be detailed enough to furnish the desired information but not so much as to obscure the general picture. Examples: spruce swamp, upland hardwoods, reverting agriculture land, bottom land hardwoods, short grass prairie, etc. Standard type symbols listed in Wildlife Management Series No. 7 should be used where possible. Figures submitted should be based on actual observations and counts on representative sample areas. Survey method used and size of sample area or areas should be indicated under Remarks.

(3) REMOVALS:

Indicate the total number under each category removed since April 30 of the previous year, including any taken on the refuge by Service Predatory Animal Hunter. Also show any removals not falling under headingslisted.

(4) DISPOSITION OF FUR:

On share-trapped furs list the permit number, trapper's share, and refuge share. Indicate the number of pelts shipped to market, including furs taken by Service personnel. Total number of pelts of each species destroyed because of unprimeness or damaged condition, and furs donated to institutions or other agencies should be shown in the column provided.

(5) TOTAL POPULATION:

Reported by Mobert L. Harber

Estimated total population of each species reported on as of April 30.

REMARKS:

Indicate inventory method(s) used, size of sample area(s), introductions, and any other pertinent information not specifically requested.

3-1757 Form NR-7 (Rev. June 1,00)

(1) ECEIPTS, AND PLANTINGS NONAGRICULTURAL COLLECTIONS

Refuge National Bison Range

Year 19 70

	(See			s and Recks, tre				Plantings (Marsh - Aquatic - Upland)									
Species	Amount (Lbs., bus., etc.)	(2) C or R	Date	Method or Source	Cost	(3) Total Amount on Hand	Location of Area Planted	Rate of Seeding or Planting	Amount Planted (Acres or Yards of Shoreline)	Amount and Nature of Propagules	Date	Survival	Cause				
Timothy	80	R	9/22	Surplus	0	200#											
Alta fescu Western W wheat	>					7# 18#	Northside range	4#/A	4 acres	16#	Aug.	Unknown					
Kentucky bluegrass						15#											
Clover	60	R	9/22		0	60#											
												1111					

 (1) Report agronomic farm crops on Form NR-8 (2) C = Collections and R = Receipts (3) Use "S" to denote surplus 	Remarks: Small eroded hill tops mulched and seeded with fescue/wheatgrass mix.
Total acreage planted:	
Marsh and aquatic Hedgerows, cover patches	
Food strips, food patches Forest plantings	

3-1758 Form NR-8 (Rev. Jan. 1956)

Fish and Wildlife Service Branch of Wildlife Refuges

CULTIVATED CROPS - HAYING - GRAZING

Cultivated		ittee's Harvested		rnment's Sl vested		Return rvested	Total	Green M	lanure, and Water-	
Crops Grown	A DESTIN	Bu./Tons		Bu./Tons		Bu./Tons	Acreage Planted		owsing Crops	Total Acreage
None	price - retena to amper dayinan per price of rela	the property of the property o	econds bympso	OF SHERMAN END OF THE PARTY OF	od prod. Sporter sp	rober present on cache process for any cache present process for any cache process for a		first hat compa		NO - CHYSING O MORN ME-9
	A CONTRACTOR	dispersion of the country of the cou	sebase egg	A PRINCES						CENTRALES
	E 10 8							Fallow	Ag. Land	None
o. of Permittees:	Agricultur	al Operation	ons None	е	Haying	Operations	None		g Operations	3
Hay - Improved (Specify Kind)	Tons Harvested	al Operatio	Cash Revenue		Haying RAZING	Num			g Operations	
Hay - Improved	Tons	18.8	Cash	ue G		Num	ber	Grazin	g Operations Refu	3 ge person
Hay - Improved	Tons	18.8	Cash	ue l.	RAZING	Num	ber	Grazin	g Operations Refu	3 ge person
Hay - Improved	Tons	18.8	Cash	1.	Cattle Other	Num Ani	ber mals	Grazin AUM'S	Cash Revenue	3 ge person

^{*} Periodic cultivation for grass hay and irrigated pasture.

DIRECTIONS FOR PREPARING FORM NR-8 CULTIVATED CROPS - HAYING - GRAZING

Report Form NR-8 should be prepared on a calendar-year basis for all crops which were planted during the calendar year and for haying and grazing operations carried on during the same period.

Separate reports shall be furnished for Refuge lands in each county when a refuge is located in more than one county or State.

Cultivated Crops Grown - List all crops planted, grown and harwested on the refuge during the reporting period regardless of purpose. Crops in kind which have been planted by more than one permittee or this Service shall be combined for reporting purposes.

Permittee's Share - Only the number of acres utilized by the permittee for his own benefit should be shown under the Acres column, and only the number of bushels of farm crops harvested by the permittee for himself should be shown under the Bushels Harvested column. Report all crops harvested in bushels or fractions thereof except such crops as silage, watermelons, cotton, tobacco, and hay, which should be reported in tons or fractions thereof.

Government's Share or Return - Harvested - Show the acreage and number of bushels harvested for the Government of crops produced by permittees or refuge personnel. Unharvested - Show the exact acreage and the estimated number of bushels of grain available for wildlife. If grazing is made available to waterfowl through the planting of grain, cover, green manure, grazing or hay crops, estimate the tonnage of green food produced or utilized and report under Bushels Unharvested column.

Total Acreage Planted - Report all acreage planted, including crop failures.

Green Manure, Cover and Waterfowl Grazing Crops - Specify the acreage, kind and purpose of the crop. These crops and the acreage may be duplicated under cultivated crops if planted during the year, or a duplication may occur under hay if the crop results from a perennial planting.

Hay - Improved - List separately the kinds of improved hay grown. Annual plantings should also be reported under <u>Cultivated Crops</u>, and perennial hay should be listed in the same manner at time of planting.

Total Refuge Acreage Under Cultivation - Report total land area devoted to agricultural purposes during the year.

REFUGE GRAIN REPORT

(1)	(2) On Hand	(3) RECEIVED	(4)		GRAIN D	(5) ISPOSED OF		(6) On Hand	Proposi	(7) ED OR SUITAB	LE USE*
VARIETY*	BEGINNING of Period	During Period	Total	Transferred	Seeded	Fed	Total	END OF PERIOD	Seed	Feed	Surplus
Oats	165		165			65	65	100		100	
Barley	817	528	1,345	rain ship proposed.		495	495	850	-011 COH-	850	
DOTAGE GO IF BLASH	, banley-0	a computing a computing and corn, go and grain, tof column and less column and less column and less column are a propose a propose a propose column and col	grain separ compens, mile as specific of Include out received dur soft patches.	-80 lb, so arely and ad May we ado soy be clais are demestic ing period a by varie shipping	y beans— o multiply the neat, durunt mas, etc. necessary grains; aq from ali s ties of gra	elled)—55 b lb., mill es that c as that c wheat, s here that in conside burges, su	the corn (contents for	roximute war) — 70 fb. awpeas — 80 awpeas — 80 to 0.8 bus for corn, squ proso millet, wheah, and iff he hated of a, share are Indicate if	wheat— the at th		

(8)	Indicate shinning or	collection point		
(0)	marcare bilipping or	concedion point	·	

(9) Grain is stored at Headquarters granary

(10) Remarks Barley received from Kootenai National Wildlife Refuge.

^{*}See instructions on back.

REFUGE GRAIN REPORT

This report should cover all grain on hand, received, or disposed of, during the period covered by this narrative report.

Report all grain in bushels. For the purpose of this report the following approximate weights of grain shall be considered equivalent to a bushel: Corn (shelled)—55 lb., corn (ear)—70 lb., wheat—60 lb., barley—50 lb., rye—55 lb., oats—30 lb., soy beans—60 lb., millet—50 lb., cowpeas—60 lb., and mixed—50 lb. In computing volume of granaries, multiply the cubic contents (cu. ft.) by 0.8 bushels.

- (1) List each type of grain separately and specifically, as flint corn, yellow dent corn, square deal hybrid corn, garnet wheat, red May wheat, durum wheat, spring wheat, proso millet, combine milo, new era cowpeas, mikado soy beans, etc. Mere listing as corn, wheat, and soybeans will not suffice, as specific details are necessary in considering transfer of seed supplies to other refuges. Include only domestic grains; aquatic and other seeds will be listed on NR-9.
- (3) Report all grain received during period from all sources, such as transfer, share cropping, or harvest from food patches.
- (4) A total of columns 2 and 3.
- (6) Column 4 less column 5.
- (7) This is a proposed break-down by varieties of grain listed in column 6. Indicate if grain is suitable for seeding new crops.
- (8) Nearest railroad station for shipping and receiving.
- (9) Where stored on refuge: "Headquarters granary," etc.
- (10) Indicate here the source of grain shipped in, destination of grain transferred, data on condition of grain, unusual uses proposed.

danuary

Refuge

National Bison Range

Proposal Number | Reporting Year

Reporting rear

ANNUAL REPORT OF PESTICIDE APPLICATION

INSTRUCTIO	NS: Wildlife Refuges M	anual. secs. 3252d, 3394b and	d 3395.				197	0
Date(s) of Application	List of Target Pest(s)	Location of Area Treated	Total Acres Treated	Chemical(s) Used	Total Amount of Chemical Applied	Application Rate	Carrier and Rate	Method of Applicatio
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
/18 - 7/20	Canada Thistle	Roadside & Picnic Area	34	2,4-D Amine	18 Gallons	2# Acid Equiv	• Water 1:100	Ground
/6-7/11	St. John'swort	Upper North Range	1,569	2,4-D Amine	784.5 Gallons	2# Acid Equiv	Water 20:100	Arial

^{10.} Summary of results (continue on reverse side, if necessary)

Canada Thistle - excellent apparent kill, extent of long range control is questionable.

St. John'swort - apparent kill 90%.

2-1750 Form NR-1 (Rev. March 1953)

WATERFOWL

1			Weeke	of m	(2)	ingn				
(1) : Species :	1/4 - 10	1/11 -17	Weeks 1/18-24: 3	1/25 -31	2/1 - 7	2/8 - 14	2/15 -21:	2/22- 28:	3/1 - 7	: 3/8 - 1
Whistling								30	60	230
Trumpeter		 								
eese:		 								
Canada								100	100	266
Cackling								200	200	
Brant										
White-fronted		-								1
Snow										-
Blue										
STREET TOTAL GERSE!		100						100	100	260
ucks:								,		
Mallard								300	300	53
Black										
Gadwall										
Baldpate				-					100	51
Pintail									65	1,54
Green-winged teal										6
Blue-winged teal										
Cinnamon teal										
Shoveler										
Wood										
Redhead										
Ring-necked										
Canvasback										8
Scaup						-				10
Goldeneye Bufflehead										10
Ruddy										
										6
9777 Nerganser									125	
TOTAL DUCKS:								300	465	2,70
oot:										

Cont. N 'L (Rev. March 1953)

WATERFOWL (Continuation Sheet)

MONTHS OF January TO April REFUGE , 19.70 BIRSTER (2) (4) (3)Total Productions Weeks of reporting period Estimated : Production (1) waterfowl :Broods:Estimated Species days use : seen : total Swans: Whistling 4 620 100 230 Trumpeter Geese: Canada 150 on 9.093 Cackling Brant White-fronted Snow 11 13 11 m 322 Blue 9-415 102 96 76 91197 TOTAL GREEKS 266 150 97 OR Ducks: Mallard 550 1,120 38,500 500 185 185 7,00 530 Black Gadwall 350 50 Baldpate 795 27,405 21.5 500 500 500 21.5 515 Pintail 10.635 LOB 450 1.000 1.20 1.20 100 340 Green-winged teal 125 9-170 225 300 60 100 70 70 Blue-winged teal Cinnamon teal 15 105 Shoveler 12,215 200 200 1.00 100 1.85 50 Wood Redhead 150 205 4.375 AS. 25 50 50 Ring-necked Canvasback 7,105 80 100 165 165 75 100 250 100" 20 Scaup 90 90 60 200 320 5,320 Goldeneve 25 3-255 105 100 1.0 LO 25 25 Bufflehead 25 25 15 10 70 1,225 Ruddy 900 6,300 94497 Merganaer 2,590 25 25 50 50 TOTAL DUCKS: 1,870 1,870 2,700 2,450 2,325 2,840 5,130 158,550 1,115 61,775 1,000 200 Coot: (over)

		(OASE)			110
(5) Total Days Use	(6) (7): Peak Number: Total Produc	tion	SUMMA	R Y	
Swans 4,620	230	Principal feed	ling areas Con	a Paris on Cham	miling
Geese 9,415	266	State -owne	d management a	rea	
Ducks 158,550	5.130	Principal nest	ing areas	2.0	
Coots 61.775	1,210	200		0.855	
Mood	2 30 500 5	Reported by	Robert L		
Cinnamon teal Shoveler	2 20 200 3	20 100 100	100	30.036	
(2) Weeks of	reporting period should be to those species of local			59,500	d be given
Reporting Period:	Estimated average refuge	populations.	76	9,435	
(3) Estimated Waterfow: Days Use:	l Average weekly populations	s x number of days pre	sent for each	species.	
(4) Production:	Estimated number of young breeding areas. Brood conbreeding habitat. Estimate	unts should be made on	two or more as	reas aggregating 10	
(5) Total Days Use:	A summary of data recorded	d under (3).		A,620	
(6) Peak Number:	Maximum number of waterfor	wl present on refuge d	uring any censu	us of reporting per	iod.
(7) Total Production:	A summary of data recorded	d under (h).	od	: Estimated :	Production

Interior Duplicating Section, Washington, D. C.
1953

3 -47500

(Continuation Sheet)

3-1750 Form NR-(Rev. March 1953)

WATERFOWL

		11 19			(2)					1 1 2
(1)					: 5/31-6/6	1 n g j	eriod	. / /23 22	: 6/28-7/4:	2 /8 11
Species	5/31- 9	5/10-16	5/17-23	5/24-30		6		: 8	: 9 :	10
Swans:										
Whistling		-/								
Trumpeter										
eese:	148	171	250	270	270		-			05-
Canada	140	1/1	250	2/0	270	270	270	270	270	27
Cackling				all regarding	1.4		E.J.			
Brant			1.1257131		19					
White-fronted										
Snow	3									
Blue										
XXXX Total Geese	151	171	250	270	270	270	270	270	270	270
ucks:	100	3.50								
Mallard	100	150	200	300	300	300	300	300	300	300
Black										\
Gadwall	30	10	10	10	10	10	10	10	10	10
Baldpate	70	25	25	25	25	25	50	50	50	50
Pintail	30	20	25	35	100	100	100	100	100	100
Green-winged teal	60		10	10	10	10	10	10	10	10
Blue-winged teal	30	25	35	50	50	50	50	75	75	100
Cinnamon teal	10	5	10	10	1.0	10	10	10	10	10
Shoveler	95	40	20	20	2.0	20	20	40	40	40
Wood	5	5	5	5	5	5	5	5	5	
Redhead	20	20	20	35	35	40	75	100	100	150
Ring-necked	5	5	5	5	5	5	. 5	5	5	
Canvasback	20	25	20	20	20	. 25	30	30	30	50
Scaup	50	40	20	20	20	20	40	10	40	60
Goldeneye										
Bufflehead	5							L T		
Ruddy	340	80	20	20	20	20	20	20	20	40
Other		N.								
Total Ducks	870	450	425	565	630	650	725	795	795	930
Coot:	250	280	280	280	230	280	300	350	400	400

Cont. N (Rev. March 1953)

WATERFOWL (Continuation Sheet)

	7/12-18		s of: 7/26-8/	repo /1 8/2-8		: 8/15-22) t ceuese	(3) Estimated waterfowl	: Produ	:Estimate
Species :	11	: 12	: 13	: 14	: 15	: 16	: 17	: 18	days use	: seen	: total
Swans: Whistling	V	smarst.A. o	data r	ellorded w	nier (3).						
Trumpeter	0.5	ORCITIES 150									
Geese:	DI.	esaruk en	eas, br	325	e spogra	DE MAGE	OR DRO OL	HOLE SIES	a aggregating	TO, SOT	dian-
Canada	270	325	325	325	335	515	185	(5039)	35,273	14_	125
Cackling											
Brant	- 44	- 	A bobs	TOPONE K	100000	gate to		-	700	-	-
White-fronted	200										
Snow		-					-	(3)			
Blue //w/dr Total Goese	2 20	-	S North R	and a ball		-				+	-
	270	325	325	325	935	515	A85_	(5042)	35,201	+	
Oucks:			1						· Management		
Mallard	300	300	400	400	1000	1520	1960	(8)30)	59,010	- 3-	156
Black Gadwall	-	b agent b	वास्त्र व्या	01 112 200 20	9 00 70 0	DUSTRIES W.	seveds ex	alasurri	named on spe	m q pe	G CALDERY,
Baldpate	50	20	20	20	20	50	r aperies	(270(1,890	of 1/2 (2) by	-6-
Pintail	100	100	100	100	500	2880	3530	(5175)	35,225	1 2	18
Green-winged teal	100	10	10	100	500	30	2,760	(17250)	120,750	- 2	- 28
Blue-winged teal	100	100	150	150	200	175	50		2,520		
Cinnamon teal	10	10	10	10	200	10	915	(2630)	18,410	- 5	36
Shoveler	40	60	60	60	100		Name and Address of the Owner, where the Owner, which is the Owne	(165)	1,155		-
Wood	5	50	5	5	5	200	200	(1075)	7,525 595	-	12-
Redhead	150	150	150	200	400	300		the second live and the se		-	-
Ring-necked	5	5	5	5		E	1600	(3(55)	25,585		24-
Canvasback	50	75	75	75	120	120	5	(85)	6.335	3	18
Scaup	60	60	60	60	300	310	300	(1500)		,	12
Goldeneye	50	- 60	- 011	- 30		1300		11,00,	10,500		12
Bufflehead	1 1	3		Sitzasti	3.4	o streets o	or one Sto	(5)	35		1001200
Ruddy	40	60	-60	60	150	190	200	(1360)	9.520	1	6
Other			1 Automore		Prin	clpal fee	ad ing are	FO WAR DISE	in tip sanca.	ra erera n	Control of
Total Ducks:	940	.005	1155	1205	3060	7095	21655	12950	300,650	23	324
Coot:	600	600	600	1000	1500	2880	h625	(15905)	104,335		400

wans	THE RESIDENCE OF THE PARTY OF T	SECTION 1 1 2 2002 10	13/5/20 1.505/65	2.5 - 5 - 5	SUMMARY			1000
			Principal feed	ing areas	Aquatic	s in reservois	end su	17-
eese 35,294	515	125	rounding cer	cal grain	fields.	95		
nicks 300,650	21,655	324	Principal nest	ing areas	Islands	in north west	portic	202
oots 104.335	4,625	400	of reservoir		(85)	100		
Shoveter Wood	80 50 5 5	80 80	Reported by	R. L.	B. (827)	269		
Cinnamon teal	10 10	10 10	10 10	70	(165)	1,105		- 8
2) Weeks of Reporting Period:	300 300 S	erage refuge po	opulations.	ance.		35,255	3	
3) Estimated Waterfow Days Use:		ly populations	x number of days pres	sent for	-	les.	The section of the se	
a) Production:	breeding are	as. Brood cour	produced based on obserts should be made on as having no basis in	two or m	ore areas	aggregating 1		
5) Total Days Use:	A summary of	data recorded	under (3).					
Charten	TT 1 TK 1	T2 t TVI	1 73 1 70 1	71 0	770 1	days use i	Spen :	603

Interior Duplicating Section, Washington, D. C. 1953 Cont. M

REPUGE

. 3 -1750a

Manapapa

(Continuation Sheet)

3-1750 Form NR-(Rev. March 1953)

WATERFOWL

REFUGE Ninepipe Nat	ional Wild	life Refu	ge			MONTHS O	F Septem	nber TO	December	, 1970
•					(2)					
(2)	1700 075	01/ 0/20	Weeks	of 1	eport	ing p	erio			
(1) Species :		9/6-9/12			:9/27-10/3					
Swans:	1	. 2	: 3	: 4	: 5 :	6	: 7	: 8	: 9	: 10
Whistling						15	15	30	60	60
Trumpeter			 	-			-	1	1-00	- 00
Geese:			-	-		-	-	+	+	-
Canada	485	405	405	895	895	895	670	670	705	705
Cackling	40)	40)	405	077	1 677	677	070	1070	100	705
Brant		 	+	1 8					+	-
White-fronted		15	15	15	15	15	15			1
Snow		1 	1	1	1-2-	5	5	5	5	
Blue									1	
XXXXXXX TOTAL GEESE	485	420	420	910	910	915	690	675	710	705
Ducks:		4.0		1	/10		0,0	*	1	101
Mallard	1.960	5.000	5.000	740	740	2,500	3.145	3.145	3,145	6,000
Black	1	1,000	7,000							
Gadwall		100	100	50	50	50	100	100	100	
Baldpate	3,530	6.480	6.480	6,550	6.550	4,000	2,170	2,170	2,170	2,000
Pintail	12,760	21,060	21.060	445	445	600	825	825	825	400
Green-winged teal	50	500	500	365	365	500	645	645	645	300
Blue-winged teal	915	200	200							
Cinnamon teal	10				, ,					
Shoveler	200			1.00	100	200	200	200	200	200
Wood	E									
Redhead	1,600	200	200	55	55	100	100	100	100	100
Ring-necked	5									
Canvasback	120		The state of the s							5
Scaup	300	200	200	50	50	50	50	50	50	50
Goldeneye										50
Bufflehead										
Ruddy	200	100	100	50	50	50	100	100	100	100
Other										
TOTAL DUCKS	21,655	33,840	33,840	8,405	8,405	8,050	7,335	7,335	7,335	9,200
Coot:										
	8,000	8,000	8,000	4,825	4.825	1,000	650	650	650	200

3 -1750a

Cont. N

(Rev. March 1953)

WATERFOWL (Continuation Sheet)

MONTHS OF September , 1970 TO December REFUGE Ninepipe National Wildlife Refuge (3) (4) (7) Total Productions : Weeks of reporting period : Estimated : Production : 11/8-11/1411/5-11/21:11/22-11/2111/29-12/5:12/6-12/12/12/12/12/20-12/26/12/27-1/2 waterfowl : Broods: Estimated (1) : 11 : 12 : 13 : 14 : 15 : 16 : 17 : 18 : days use : seen : total Species Swans: 10 2,065 40 20 10 20 Whistling Trumpeter Geese: 58,660 265 200 200 100 100 35 Canada 400 350 Cackling 8 Brant 630 White-fronted Snow 140 Blue 200 200 100 100 PAKE TOTAL GEESE 400 350 265 35 59.430 Ducks: Mallard 12.850 13,000 10,000 9.000 8.000 806.575 10,000 13,000 8,000 Black Gadwall 4.550 50 303,800 Baldpate 500 50 50 50 50 50 500 415,765 100 50 Pintail 34,055 Green-winged teal 300 50 Blue-winged teal 9.205 70 Cinnamon teal Shoveler 50 10,150 Wood Redhead 18,620 50 Ring-necked 35 Canvasback 840 Scaup 7,700 50 10.150 Goldeneye 100 150 150 200 200 200 200 200 Bufflehead 7,175 Ruddy Other 5 002 10,250 8,250 1,628,725 9,200 10,775 13,050 13,250 13,250 9,250 TOTAL DUCKS Total Days Us 257,600 0 0 0 Coot: (over)

Total Days Use	(6) (7) : Peak Number : Total Production	SUMMARY	257,600
WOTAL DROKE	9,200 1 10,775 13,050 1 13,250	13.250 10.250 9.250 8.250	628,725
Swans 2,065	60 :	Principal feeding areas Aquat	ics in reservoir and
Geese 59,430	915	small grains on surrounding Sta	te Management Area.
ucks 1,628,725	33,840	Principal nesting areas	7,700
coots n257,600	8,000		35
Wood	50	Reported by Robert L. Barber	35
	60		30 30
	1 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2		
2) Weeks of Reporting Period:	Estimated average refuge population	700 700 700	59,430
	d	700 700 700	140 59,430
Reporting Period: 3) Estimated Waterfow	Average weekly populations x Estimated number of young probreeding areas. Brood counts	ulations. Joo Joo 32	ies. al counts on representative aggregating 10% of the
Reporting Period: 3) Estimated Waterfow Days Use: 4) Production:	Average weekly populations x Estimated number of young probreeding areas. Brood counts	number of days present for each speceduced based on observations and actus should be made on two or more areas having no basis in fact should be om	ies. al counts on representative aggregating 10% of the itted.
Reporting Period: 3) Estimated Waterfow Days Use: 4) Production:	Average weekly populations x Estimated number of young probreeding areas. Brood counts breeding habitat. Estimates A summary of data recorded un	number of days present for each speceduced based on observations and actus should be made on two or more areas having no basis in fact should be om	ies. al counts on representative aggregating 10% of the itted.

To December

REFUCE Ninepipe National Wildlife Refuge

3-1751 Form NR-1A MIGRATORY LARDS Minepipe (Nov. 1945) (other than waterfowl) Jan ADT 70 Months of to 195 19 bas seved III Refuge . Mourning dove (2) (5) evob beaniw elin(6) (1)(3) (4) First Seen Peak Numbers Species Last Seen Production Total Number Total # Total Estimated Common Name Number Number Colonies' Number Date Date Date Nests Young Number Golden eagle I. Water and Marsh Birds: Duck hawk Horned owl Common Loon 2 4/29 2 4/29 St111 Present Magpi Red-necked Grebe 4/7 30 4/29 WOID Eared Grobe 4/29 30 30 4/29 # Inch blad Western Grebe 1/29 1/29 2 Great Blue Heron 3/12 10 1/29 Reported by End ort Low Barber INSTRUCTIONS Use the correct names as found in the A C.U. Checklist, 1931 Edition, and list group in A.O.U. Epecies: "flugsea" as amred fareneg liovA . nibro II. Shorebirds, Gulls and doifibbs dl etc. Terns: On the second second and troper and guilder at other species occurring Killdeer and No. 2 sem printe space 3/12 significance aradgiiformes) Colling prints Colling 4/29 4/29 eons Stelet. 150 Ring-billed Cull 3/2 1/29 The first refuge record for the species for the season concerned. eak Numbers: The greatest number of the species present in a limited interval o The last refige record for the species during the season concerned Est mated number of young produced based on obse vations and actual roduction: Estimated total number of the s(revo) using the refuge during the period concerned.

1	(1)	(2)		206	RATORY N	14)		(5)	(6)
II.	Doves and Pigeons:	*Sql		rfowl)	than wate Months	(other			Refuge	Nov. 1945
	Mourning dove							-		,
Is.	White-winged dove (3)		i	(4 Last		Peak Nu		(2 First	(1) ecies	
	Predaceous Birds:		Date	redmuM	Date	Number	Date	Number	on Name	Comm
	Golden eagle Duck hawk Horned owl	1	3/12	2	WT	2	4/7		d Marsh Birds:	
	Magpie		2165503	SHILL	4/29	\$	1423		000	I maso
	Raven Crow			10	62,79	905	147	1	ofor0 bea	Seid-medi
	Bald Ragle	1	3/2	2	3/12	2 00	3/12	30	6.60	Obered
			. 0	.07	1/29	S	4/29	8	ndosti.	Notice!
			- 0	- 10	4/29	O.s.	3712	1	dast col	El due d
							Reporte	d by Roll	ert L. Barber	

INSTRUCTIONS

(1) Species: Use the correct names as found in the A.O.U. Checklist, 1931 Edition, and list group in A.O.U. order. Avoid general terms as "seagull", "tern", etc. In addition to the birds listed on form, other species occurring on refuge during the reporting period should be added in appropriate spaces. Special attention should be given to those species of local and National significance. Groups: I. Water and Marsh Birds (Gaviiformes to Ciconiiformes and Gruiiformes)

II. Shorebirds, Gulls and Terns (Charadriiformes)

III. Doves and Pigeons (Columbiformes)

IV. <u>Predaceous Birds</u> (Falconiformes, Strigiformes and predaceous Passeriformes)

(2) First Seen: The first refuge record for the species for the season concerned.

(3) Peak Numbers: The greatest number of the species present in a limited interval of time.

(4) Last Seen: The last refuge record for the species during the season concerned.

(5) Production: Estimated number of young produced based on observations and actual counts.

(6) Total: Estimated total number of the species using the refuge <u>during the period</u> concerned.

rm NR-1A	(5)			(A) M	GRATORY E	RDS		(2)		(1)	
ov. 1945)				(other	than wat	terfowl)					
	Refuge	nepipe				of	y	toSept.	19	9.70	III. Doyes
			2502029	80111	8/15	700	5/15	. 92		ing dove	Mourni.
	(1)	(2		(3		(4			, ,	winged do	, ,
S	pecies	First	Seen	Peak Nu	mbers	Last	Seen		Production		Total
Com	mon Name	Number	Date	Number	Date	Number	Date	Number Colonies	Total # Nests	Total	Estimated Number
	mon Name	- Rumber	Date	IVUMBET	Date	Number	Date	001011105	NCS CS	e Lagre	
. Water a	nd Marsh Birds:									awai	Duck l
			1							Iwo I	Ногле
Common	Loon	Provious	Period	3	5/8	St111	Present				Magpi
										1	Raven
"ed-ne	cked Grebe	Previous	Period	225	7/15	St111	Present		1	75	WOT 0 225
Bared !	Graha			200	5/8					Unku	
				200	3/0			1		UBICI	OUR
Vester	a Grebe			225	7/15					75	225
Great	Blue Heron			180	7/15	•	*	3	52	75	180
Diedak	illed Grebe	by	bej 18/21	1	8/21					Unk	
			4,62	-	0/21			4	-	UBACI	IONE
						INSTRU					
o A ni q	n, and list grou	931 Editio	sklist, l	O.U. Che	in the A	as found	oct names	the corr	Use	Species:	
. Shorebi	rds, Gulls and	doilibbs d	I .oje .	", "tern"	"seagull	terms as	d general	r. Avoic	ord		
Terns	should be added	noried Bur	Jioqei ei	in Bulling	on refuge	COUPTING	species o	1. other	701		
Common	of local and Nat	O atseam	5/8	200	7/15			ite space		100	
		maradriifo			ebirds,			AOMPOTITI	Sis	100	
	er's Tera	15 (8)	5/8	ob75enoer	7/15	III" Dov				50	
spos	ormes and predac		coniforme	rds (Fale	laceous B	IV. Pre	17.				
Black	Passerifosco	1	6/1	100	7/15					50	
Ellide		Presedon	s Perio	500	species	at for the	nge reco	first re	enT :ne	300	(2)
	.emij			7321 6 7	para mai	one and the		tootoo	autili i no		
Califor	rnia Gull	to layretu		1000	8/21	the spe	o teomon	10012019	SH . C.10	300	
D4		conceined	season'	750	species	d for the	MEG TECOL	last reft	The	Last Seen	(4)
NTEG-B	seked Gull									200	
	The state of the s	Francisco Contractor				-		mated num	1	Production	

(1)		(2)	-	RATORY D	1 (4)	-	(5) (6)
II. Doves and Mourning de		10	5/15	100	8/15	Still	Present		(Nov. 1945) RefugeMen
(White-wing			7,-7	14	-, -,	(3)	-11000	(S)	(1)
Total	roduction	9	neel	Last	bers	Peak Nu	певі		Ipecies
IV. <u>Predaceous</u> Golden eag	Birds:	Number Colonies	_Date	Number	Date	Number	Date	Number_	Common Name
Duck hawk Horned owl									I. Water and Marsh Birds:
Magpie Raven			Prosont	80111	878		Payson	Proof one	Christale Loop.
Crow	5		Propost	D0623	2/15	225	Postod	Pravious	Pod-picked Grain
Talescom .			80	100	6/8	200	. 00	44	Magail Grobe
225 22			11	69	7/15	225	25	* *	Vestam Groba
280	52	8	19	- 00	7/15	451	22	98	Great Elias Regio
The Report to					2578	2	Reported	by R.	L. B.

INSTRUCTIONS

(1) Species:

200

部

Use the correct names as found in the A.O.U. Checklist, 1931 Edition, and list group in A.O.U. order. Avoid general terms as "seagull", "tern", etc. In addition to the birds listed on form, other species occurring on refuge during the reporting period should be added in appropriate spaces. Special attention should be given to those species of local and National significance. Groups: I. Water and Marsh Birds (Gavilformes to Ciconilformes and Gruilformes)

II. Shorebirds, Gulls and Terns (Charadriiformes)

III. Doves and Pigeons (Columbiformes)

IV. <u>Predaceous Birds</u> (Falconiformes, Strigiformes and predaceous Passeriformes)

Parostar's Tara

Ping-negled Oull

(2) First Seen: The first refuge record for the species for the season concerned.

(3) Peak Numbers: The greatest number of the species present in a limited interval of time.

(4) Last Seen: The last refuge record for the species during the season concerned.

(5) Production: Estimated number of young produced based on observations and actual counts.

(6) Total: Estimated total number of the species using the refuge during the period concerned.

3-1751 Form NR-1A MIGRATORY backs (other than waterfowl) (Nov. 1945) Refuge Ninepipe Months of September to December 19570 bas asvod III 100 (5) evob beggive-stin(6) (1)(2) (3)(4)Species First Seen Peak Numbers Last Seen Production Total Number Total # Total Estimated Common Name Colonies' Number Number Number Nests Young Number Date Date Date Golden eagle I. Water and Marsh Birds: Duck hawk Iwo begrod Common Loon Previous Period 9/1 9/15 1 ignal3 Red-Necked Grebe 9/1 9/10 25 20 25 12/119 9/1 6 50 Western Grebe 50 10/10 21 9/1 Pied-billed Grebe 9/10 9/1 Great Blue Heron 100 Still Present 100 by Robert L. Barber INSTRUCTIONS Use the correct names as found in the A O.U. Checklist, 1931 Edition, and list group in A.O.U. terms as "seagull etc. In addition II. Shorebirds, Gulls and Terns: ebbs ed bluods loined an inogen at gairub eguler at gairub other species o to those species of local and Nationa. tevin ed l attention shoul printe space Killdeer significance Previous Period 200 12/21 200 umbiforms) 9/1 8 400 4 111 Common Snipe 12/8 200 Strigiformes and p California Gull ,000 9/1 .000 30 11/15 1,000 The Tirst refuge reco irst Seen 750 9/1 Ring-billed Gull 10/10 750 terval o the species present in a The greatest number o eak Numbers: Forester's Term 9/1 9/15 The last refige record for the species during th Black Tern 100 9/1 100 100 and actua Estimated number of young produced based on observations

Estimated total number of the streyor using the refuge during the period concerned.

	(1)		2)	201	RATORY N	<u>(4</u>)		(5)	(6)
					than wat	(other				lov. 1945
	<u>Doves and Pigeons:</u> Mourning dove			100	9/1	5	9/15	- oald	neil en en	100
	White-winged dove		1	4)	7/1	(3)	1111	(2)	1)	
[s]	ction Tot	Produ	i i	Last		Peak Nut		First	cies	
T V 00	Golden eagle	-	10/26	TedmuM 2	11/25	Number 2	11/25	Number	n Name	Conmo
	Duck hawk								Marsh Birds:	bns reteW 1
	Horned owl									
	Magpie		51/6	T	1/6	3	Period	Previous	fio	Common Le
	Raven Crow		9/10	20	1/6	. 25	11	11	d Grebe	oxueM-bed.
							12/29			
	Bald Eagle	7	11/25	4	11/25	38	12/27	19	rebe	Nestwir
		4	V.A.N.	1.1	1/6	5	- 11	10	90 6110 09	Fied-5111
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	COL	Pigeons: love Previous Periged dove Birds: gle 1 10, es: Use the correct order. Avoid ge form, other spect priate spaces. significance. Comparing the special spaces. Significance. Comparing the special spaces of the special spaces. Significance of the special spaces of the special spaces. Significance of the special spaces of the special spaces of the special spaces. Significance of the special spaces of the special spaces of the special spaces of the special spaces. Seen: The special spaces of the special spaces of the spaces of the special spaces of the special spaces of the spa	resent	Still B	1/6	100	12	18	e lare.	Great Slu
							Reporte	d by Rober	rt L. Barber	1
				TAXONO	CETANG		Kepor te			
	(1) Species:	order. Avor form, other priate space significance	id general species d es. Speci e. Groups	terms as occurring al attents: I. Wat II. Dov	s "seagul: on refug ion shou er and Ma rebirds, es and P: daceous I	l", "tern" e during t ld be give arsh Birds Gulls and igeons (Co Birds (Fal	ecklist, , etc. the report on to those (Gaviifo Terns (Coniform coniform	1931 Editi In addition ting period se species ormes to Co Charadriifo nes) es, Strigi	on, and list gr n to the birds d should be add of local and N iconiiformes an	listed on ed in appro- ational d Gruiiforme aceous
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	(2) First Seen: (3) Peak Numbers:	order. Avor form, other priate space significance. The first remarks the greates. The last remarks the state of the last rema	id general species of species. Species. Groups efuge recorfuge rec	terms as occurring al attents: I. Wat II. Sho III. Dov IV. Preport for the special for the spe	l in the A seagul on refugion shouler and Marebirds, es and Produced account to the species of t	l", "tern" e during t ld be give arsh Birds Gulls and igeons (Co Birds (Fal s for the sent in a during th	ecklist, t, etc. the reported to those (Gaviiformeconifor	1931 Edition addition ting period se species ormes to Concerned.	on, and list granto the birds dishould be add of local and Niconiiformes and ormes) formes and pred Passeriform	listed on ed in appro- ational d Gruiiforme aceous es)

3-1750b Form NR-1B (Rev. Nov. 1957)

UNITED STATES DEPARTMENT OF THE INTERIOR FISH AND WILDLIFE SERVICE BUREAU OF SPORT FISHERIES AND WILDLIFE

WATERFOWL UTILIZATION OF REFUGE HABITAT

Refuge N	inepipe	For 12-	month period	ending Augu	st 31, 19 <u>70</u>
Reported by	R. L. B.	Title	Asst. Ref	. Mgr.	Bernet Barry Manufacture (1944) And Spiceroscope Service Service (1944)
(1) Area or Unit Designation	(2) Habitat Type Acreage	Charry to the June 1960 March September 1960 March	(3) Use~days	(4) Breeding Population	(5) Production
design and an electrical production of the control	Crops 0 Upland 246 Marsh 572 Water 1,201 Total 2,022	Ducks Geese Swans Coots Total	1,564,360 128,759 4,620 216,685 1,914,424	386 70 0 200 656	3 2 4 Confusion and the confus
	Crops Upland Marsh Water Total	Ducks Geese Swans Coots Total	Familian in the Company of the COMPA		dang beginner seminance of sign responsibilities of sign responsibiliti
	Crops Upland Marsh Water Total	Ducks Geese Swans Coots Total			The Control of the Co
225 506 60 ⁶ 500 533 60 ³ 503	Crops Upland Marsh Water Total	Ducks Geese Swans Coots Total	**************************************	Mills of Mary Sensitives Application of American Mills (Mills of Mills of M	BEOLOGIC SELECTION CONTRACTOR AND CONTRACTOR OF THE SELECTION CONTRACTOR OF THE SELECT
469 639 636 647 625 648 C3	Crops Upland Marsh Water Total	Ducks Geese Swans Coots Total	CONTRACTOR OF CO	GD WE CB GO CD CD COLUMN TO COLUMN THE PROPERTY OF THE PROPER	project control of the control of th
	Crops Upland Marsh Water Total	Ducks Geese Swans Coots Total	CREATE CONTRACTOR AND	SCatherd Seatherd regive Assess to response to Concluming and regive report of the control to Concluming and regive report of the control to Control to the control to Control to	Collinaria and proportion and process requirements Collinaria and proportion and process requirements Collinaria and proportion and process requirements Collinaria and proportion and p
	Crops Upland Marsh Water Total	Ducks Geese Swans Coots Total	AND COLORS OF SECOND CO	TO ON ON TO CO	Gregowydd Achill Caelland Cael

Refuge Ninepipe Months of Jan to Apr , 1970

(1) Species	(2) Density	d in re	(3) Young Produced	(4) Sex Ratio		(5) emova		(6) Total	(7) Remarks	(1)
Common Name		Acres per	Number broods obs'v'd. Estimated Total	Percentage		For Restocking	For Research	Estimated number using Refuge	Pertinent information specifically related introduction	equested.
Fing-necked pheasant	b 246 a. grassland	land, b ed in W ubmitte e areae	riculture mbols list Figures s tive sampl	reverting a dard type s e possible. on represent	eds; Sta whe	ardwo etc. used d cou	and h rie, ld be os an	West 100		
unts	tions and actual co	sviesdo	ased upon	produced, h	nicov Libes	to n	numbe ntati	Estimated in represe	YOUNG PRODUCED:	
ta on	s, etc. Include da	heasant	d familia.	ofly to wild	orim Llabi	lies Cava	n app	This column other spec	SEX RATIO:	
	the report period.	gninut	y removed	each categor	r in	eďavn		Indicate t		
AV n seasons.	ort period. This m singe during certai	qer edi c the r	ge during rating int	rler end gold gim eachd au.	ur tit lg al	dawn ritd d	total siden	Estimated include re		
Also	covered in survey.		ns no jstu Klipeda jo	etermine pop	od drie	used artin		Indicate m		
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			beau	ed bluods be	Teve	o bol	req s	sble to th	ilqqs enmuloo yin	
ttel										

INSTRUCTIONS

Form NR-2 - UPLAND GAME BIRDS.*

Applies particularly to those species considered in removal programs (public hunts, etc.). Detailed data may be omitted for species occurring in limited numbers. Density to be expressed in acres per animal by cover types. This information is to be prefaced by a statement from the refuge manager as to the number of acres in each cover type found on the refuge; once submitted, this information need not be repeated except as significant changes occur in the area of cover types. Cover types should be detailed enough to furnish the desired information but not so much as to obscure the general picture. Examples: spruce swamp, upland hardwoods, reverting agriculture land, bottomland hardwoods, short	
information but not so much as to obscure the general picture. Examples: spruce	
grass prairie, etc. Standard type symbols listed in Wildlife Management Series No. 7 should be used where possible. Figures submitted should be based on actual observations and counts on representative sample areas. Survey method used and size of sample area or areas should be indicated under Remarks.	
(3) YOUNG PRODUCED: Estimated number of young produced, based upon observations and actual counts in representative breeding habitat.	
(4) SEX RATIO: This column applies primarily to wild turkey, pheasants, etc. Include data on other species if available.	
(5) REMOVALS: Indicate total number in each category removed during the report period.	
(6) TOTAL: Estimated total number using the refuge during the report period. This may include resident birds plus those migrating into the refuge during certain seasons.	
(7) REMARKS: Indicate method used to determine population and area covered in survey. Also include other pertinent information not specifically requested.	

^{*} Only columns applicable to the period covered should be used.

Refuge Minerine

Refuge Nine Pipe Months of to sept , 19 70

(1) Species	(2) Density	in rem	(3) Young Produce	g ed	(4) Sex Ratio	Re	(5) emova:		(6) Total	(7) Remarks	(1)
is	Cover types, total acreage of habitat	Acres per Bird	Number broods obs'v'd.	Total	Percentage	Hunting	For Restocking	For Research	Estimated number using Refuge	Pertinent inform specifically re List introduction	quested.
actual	e 246 a. Grass-	neral pand, be and, be the winttee areas under	ture loste gres sy sample	129	sh as to obs reverting ag dard type sy s possible. n representa sas should b	ds, Stan wher	rdwoo tto. used cour	nd haie, to do he he	observation		
nts	dons and actual con	bserva	noqu l	ased	produced, b g habitat.	edin	of bre	umber tetir	Estimated : in represes	YOUNG PRODUCED:	(8)
a on	, etc. Include dat	dassant	riey, pi	tur	rily to wild	emlra [dal	tes p	appi es 11	This column	SEX RATIO:	(%)
	he report period.	guring	bevolge	ea A	each categor	in	cedmu	tal 1	Indicate to	REMOVALS:	(& ')
	rt period. This me fuge during certain	he repo	igring ing int	ge d rati	ing the refu us those mig	r us is pl	dmun rid	otal	Estimated include rea	TOTAL:	(6)
Also		area ally r	tion and	teLi i Jo	etermine pop nformation n	to d	used	thod ser p	Indicate me	REMARKS:	(7)
			£	used	ed bluods b	PTOV	o bo.	req (dt of elde	nly columns appli	0 #
1613				1							

Refuge Mine Pine

INSTRUCTIONS

Form NR-2 - UPLAND GAME BIRDS.*

(1)	SPECIES:	Use correct common name. (2)
(0)	Remarks	Species Density Toung Set Removals Total
(2)	DENSITY:	Applies particularly to those species considered in removal programs (public
		hunts, etc.). Detailed data may be omitted for species occurring in limited
sation not	Pertinent inform	numbers. Density to be expressed in acres per animal by cover types. This information is to be prefaced by a statement from the refuge manager as to the
	specifically re	number of acres in each cover type found on the refuge; once submitted, this
ns here.	List introduction	information need not be repeated except as significant changes occur in the area
		of cover types. Cover types should be detailed enough to furnish the desired
		information but not so much as to obscure the general picture. Examples: spruce
		swamp, upland hardwoods, reverting agriculture land, bottomland hardwoods, short
		grass prairie, etc. Standard type symbols listed in Wildlife Management Series
		No. 7 should be used where possible. Figures submitted should be based on actual
		observations and counts on representative sample areas. Survey method used and
		size of sample area or areas should be indicated under Remarks.
(3)	YOUNG PRODUCED:	Estimated number of young produced, based upon observations and actual counts
(2)	2001.0 21.0200227	in representative breeding habitat.
(4)	SEX RATIO:	This column applies primarily to wild turkey, pheasants, etc. Include data on
		other species if available.
(5)	REMOVALS:	Indicate total number in each actors and domina the named and
(5)	REMOVALS:	Indicate total number in each category removed during the report period.
(6)	TOTAL:	Estimated total number using the refuge during the report period. This may
(-/		include resident birds plus those migrating into the refuge during certain seasons.
(7)	REMARKS:	Indicate method used to determine population and area covered in survey. Also
		include other pertinent information not specifically requested.

^{*} Only columns applicable to the period covered should be used.

Refuge Ninepipe

UPLAND GAME BIRL

Months of September to December, 19 70

									ME BIRDS.*	NR-2 - UPLAND GA	Form
(1) Species	(2) Density		(3) Young Produce		(4) Sex Ratio	R	(5) emova	ls	(6) Total	(7) Remarks	(1)
Common Name	Cover types, total acreage of habitat	Acres	Number broods obs'v'd.	Total	Percentage	Bu	For Restocking	For Research	Estimated number using Refuge	Pertinent infor specifically r List introducti	equested.
pheasant of a	246 a. Grassland 246 a. Grassland	land, i ed in i wbmitte e aress	letaileo ra the g ralture da list gures r re sampl	oe d scur mic mbo Fi	ypes should reh as to ob reverting a ndard type are possible. The represent reas should	so m ods, Sta whe	Cov not ardwo etc. used d cov	ypes, n but and l rie, ld be	350	Heavy influx induring s	
eżnu	tions and actual oc	observa	noqu bi	nase	produced, ng habitat,					YOUNG PRODUCED:	
ta on	s, etc. Include da	hoasanf	nkey, p	ina 1					This column	SEX RATIO:	(4)
	the report period.	during	bevose	x V	each catego	ni r	adawn	lajo	Indicate t	REMOVALS:	(5)
ay n seasons.	ort period. This m efuge during certai	the report of the a	during ing int	ge	sing the ref lus those mi	d sp n as	imun rhi d	total sider	Estimated include re	:JATOT	
Also	covered in survey.				determine population					REMARKS:	(7)
								1			
			_s be	use	ed bluods be	Tevo	tod e	ted e	cable to ti	nly columns appli	0 *
1913				•							

Refuge Ninepipe

redmedge2 INSTRUCTIONS

Form NR-2 - UPLAND GAME BIRDS.*

10141 1111 2 012111110 0	ARES DIRECT			
(1) SPECIES:	Use correct common name.	Young Sex	(2) Density	(1) Species
(2) DENSITY:	Applies particularly to the hunts, etc.). Detailed da	ose species considere		
Pertinent information not specifically requested. List introductions here.	numbers. Density to be exp information is to be prefa number of acres in each co information need not be re	pressed in acres per a aced by a statement frover type found on the	nimal by cover types. This om the refuge manager as to refuge; once submitted, t	is to the this
Heavy influx into refuge during hunting season.	of cover types. Cover type information but not so much swamp, upland hardwoods, r	es should be detailed to as to obscure the greverting agriculture ard type symbols list possible. Figures so representative sample	enough to furnish the despendent picture. Examples: land, bottomland hardwoods ed in Wildlife Management ubmitted should be based on areas. Survey method us	sired s spruce on your s, short me send Series on actual
(3) YOUNG PRODUCED:	Estimated number of young in representative breeding		observations and actual co	unts
(4) SEX RATIO:	This column applies primar other species if available		heasants, etc. Include da	ta on
(5) REMOVALS:	Indicate total number in e	ach category removed	during the report period.	
(6) TOTAL:	Estimated total number usi include resident birds plu			
(7) REMARKS:	Indicate method used to de include other pertinent in			Also

^{*} Only columns applicable to the period covered should be used.

SMALL MAMMA

Refuge___ Year ending April 30, 1990.

(1) Species	Density	ni bereb.	eno	0 88	(3) ovals	each	n of			(4) tion of		Thra	(c)	(5)
bit, etc. ok of Worth	. white-tailed jackral found in the "Field B.	errlupa era eau	nlupa zol a sou jaon	rel, f	mr a	DOM: DOM: OF	imag sommo s	diale mapping			Refuge	ted	mt.	Total Popula
Common Name	Cover Types & Total Acreage of Habitat	Acres Per Animal	Hunting	Fur Harvest	Predator Control	For Re- stocking	For Re-	Permit Number	Trappers Share	Refuge	Total Ref Furs Ship	Furs Donated	Fure Destroyed	tion
Meadow Mouse Deer Nouse Striped Skunk Muskrat Mink Badger Weesel Beaver Columbian Groundsquirre Pocket Copher Coyote	246 a. grasaland 1,672 a. marsh & wate 246 a. grasaland 818 a. marsh & uple 2,000 a. marsh & uple 246 a. grassland	round from the control on the	ate ape typ a to a t	a st ver Cove it no iplan is pr i No. actu	ed in by a con	press eface in es r typ rmati short ent f base urvey Reman	be at cover a	sity to a first to ber of a control action desired desired diffe Ma control diffe Ma control dicated dicate ticate discontrol dicate discontrol discon	Des th th th th th im ime onf			VONE		Noderate 50 Unknown 5 Low Occasion Low Low Occasion
aken by Service use of unprime- ther agencies	Predator Animal Hunter	m of bed dose to stanob st	qld afl fu	a af sq b	f per ber c	ber o l num condî	e num Tota aged	icate the	Ind ind ion	OF FUR	KOITI	I SPOI	į (45)	

Indicate inventory method(s) used, size of sample area(s), introductions, and any other pertinent information not specifically requested.

> Robert L. Barber Reported by

Year ending April 30.

Form NR-4 - SMALL MAMMALS (Include data on all species of importance in the management program; i. e., muskrats, beaver, coon, mink, coyote. Data on small rodents may be omitted except for estimated total population of each species considered in control operations.)

(1) SPECIES:

IntoT

Use correct common name. Example: Striped skunk, spotted skunk, short-tailed weasel, gray squirrel, fox squirrel, white-tailed jackrabbit, etc. (Accepted common names in current use are found in the "Field Book of North American Mammals" by H. E. Anthony and the "Manual of the Vertebrate Animals of the Northeastern United States" by David Starr Jordan.)

3-1754

INTERIOR -- PORTI AND OREGON

(2) DENSITY:

Applies particularly to those species considered in removal programs. Detailed data may be omitted for species occurring in limited numbers. Density to be expressed in acres per animal by cover types. This information is to be prefaced by a statement from the refuge manager as to the number of acres in each cover type found on the refuge; once submitted, this information need not be repeated except as significant changes occur in the area of cover types. Cover types should be detailed enough to furnish the desired information but not so much as to obscure the general picture. Examples: spruce swamp, upland hardwoods, reverting agriculture land, bottom land hardwoods, short grass prairie, etc. Standard type symbols listed in Wildlife Management Series No. 7 should be used where possible. Figures submitted should be based on actual observations and counts on representative sample areas. Survey method used and size of sample area or areas should be indicated under Remarks.

(3) REMOVALS:

Indicate the total number under each category removed since April 30 of the previous year, including any taken on the refuge by Service Predatory Animal Hunter. Also show any removals not falling under headingslisted.

(4) DISPOSITION OF FUR:

On share-trapped furs list the permit number, trapper's share, and refuge share. Indicate the number of pelts shipped to market, including furs taken by Service personnel. Total number of pelts of each species destroyed because of unprimeness or damaged condition, and furs donated to institutions or other agencies should be shown in the column provided.

(5) TOTAL POPULATION:

Estimated total population of each species reported on as of April 30.

REMARKS:

Indicate inventory method(s) used, size of sample area(s), introductions, and any other pertinent information not specifically requested.

3-1758 Form NR-8 (Rev. Jan. 1956)

Fish and Wildlife Service

Branch of Wildlife Refuges

CULTIVATED CROPS - HAYING - GRAZING

Cultivated		ittee's Harvested		nment's Sh		Return rvested	Total	Green M Cover a	anure, nd Water-	
Crops Grown	Acres	Bu./Tons	Acres	Bu./Tons	Acres	Bu./Tons	Acreage Planted	fowl Br Type an	owsing Crops d Kind	Total Acreage
ring the year.	flastics - Pebais of The Coltises of the Coltises of the Coltises to the Coltises of the Coltises to the Coltises of the Colti	- acord grixerd inc ed bus acord seed ed grixed being 1 ed grixer being 1	bedneig spens fis	* All coll	permits	are issued the Burea	and all r u of India	eceips an n Affairs	ce , Ronan, Mor	ntana .
ъ в ваод шд	etstages tell	the crops of the c	nder ere sebon	ed to write to	V		dall - me D per ed ben to bend to	85	Ag. Land	VALD CEOS
o. of Permittees:	Agricultur	al Operation	ons No	ne	naying	Operations	None	Grazin	g Operations	1
Hay - Improved (Specify Kind)	Tons Harvested	Acres	Cash Revenu		RAZING	Num Ani	per	AUM'S	Cash Revenue	ACREAGE
94	aj p	E DOS	Lat.	1.	Cattle	23	3 2 16	92	*	270
9	Les de la constant de	2 ZZ	4 5	4 1 1 1	Other	TO THE PARTY OF TH	2 de 110	910	3 4	
\$.	8 2	Q Q 00	h 0,1	1.	Total R	efuge Acre	age Under (Cultivati	on	0
									and the second second second second second	U

Report Form NR-8 should be prepared on a calendar-year basis for all crops which were planted during the calendar year and for haying and grazing operations carried on during the same period.

Separate reports shall be furnished for Refuge lands in each county when a refuge is located in more than one county or State.

Cultivated Crops Grown - List all crops planted, grown and harvested on the refuge during the reporting period regardless of purpose. Crops in kind which have been planted by more than one permittee or this Service shall be combined for reporting purposes.

Permittee's Share - Only the number of acres utilized by the permittee for his own benefit should be shown under the Acres column, and only the number of bushels of farm crops harvested by the permittee for himself should be shown under the Bushels Harvested column. Report all crops harvested in bushels or fractions thereof except such crops as silage, watermelons, cotton, tobacco, and hay, which should be reported in tons or fractions thereof.

Government's Share or Return - Harvested - Show the acreage and number of bushels harvested for the Government of crops produced by permittees or refuge personnel. Unharvested - Show the exact acreage and the estimated number of bushels of grain available for wildlife. If grazing is made available to waterfowl through the planting of grain, cover, green manure, grazing or hay crops, estimate the tonnage of green food produced or utilized and report under Bushels Unharvested column.

Total Acreage Planted - Report all acreage planted, including crop failures.

Green Manure, Cover and Waterfowl Grazing Crops - Specify the acreage, kind and purpose of the crop. These crops and the acreage may be duplicated under cultivated crops if planted during the year, or a duplication may occur under hay if the crop results from a perennial planting.

Hay - Improved - List separately the kinds of improved hay grown. Annual plantings should also be reported under <u>Cultivated Crops</u>, and perennial hay should be listed in the same manner at time of planting.

Total Refuge Acreage Under Cultivation - Report total land area devoted to agricultural purposes during the year.

REFUGE GRAIN REPORT

(1)	(2) On Hand	(3) Received	(4)		GRAIN D	5) SPOSED OF		(6) On Hand	Propos	(7) Proposed or Suitable Use*				
Variety*	BEGINNING of PERIOD	During Period	TOTAL	Transferred	Seeded	Fed	Total	END OF PERIOD	Seed	Feed	Surplus			
Barley	900		900			344	344	556		556				
10.12.1 60.1 80.01	# shall be completed by barley—50 lb. 1 ### Color of the	maidered of maidered of the computing and corn, go and corn, go and corn, go and corn, go and grain the column of column and less column and less column and less column and less column and column and less c	met wheat, n owpens, mile as specific of include only received dur pod patches, s 2 and 3.	a bushel -80 lb., so thely and ad May we ado soy be etalls are domastic ing period ips. I by varia- ips. Wipging a shipging a	Corn (she beans—6 multiply the pecifically, lest, duron ans, etc. grains; and from all strom all	ellod)—56 e cubic col se filmt co wheat, si Mere listi in conside satic and i purces, su in listed i	of 50 15, or (e) of 50 15, or (e) of 15, or (e) or	ary—10 By, owpess—60 owpess—60 owpess—60 om corn, squares millet, wheat, and i if he listed of findicate if	wheat lb., and lefs. stre deal combine oybeans whites to libias to ping, or grain is					

REFUGE GRAIN REPORT

This report should cover all grain on hand, received, or disposed of, during the period covered by this narrative report.

Report all grain in bushels. For the purpose of this report the following approximate weights of grain shall be considered equivalent to a bushel: Corn (shelled)—55 lb., corn (ear)—70 lb., wheat—60 lb., barley—50 lb., rye—55 lb., oats—30 lb., soy beans—60 lb., millet—50 lb., cowpeas—60 lb., and mixed—50 lb. In computing volume of granaries, multiply the cubic contents (cu. ft.) by 0.8 bushels.

- (1) List each type of grain separately and specifically, as flint corn, yellow dent corn, square deal hybrid corn, garnet wheat, red May wheat, durum wheat, spring wheat, proso millet, combine milo, new era cowpeas, mikado soy beans, etc. Mere listing as corn, wheat, and soybeans will not suffice, as specific details are necessary in considering transfer of seed supplies to other refuges. Include only domestic grains; aquatic and other seeds will be listed on NR-9.
- (3) Report all grain received during period from all sources, such as transfer, share cropping, or harvest from food patches.
- (4) A total of columns 2 and 3.
- (6) Column 4 less column 5.

Hoadquarters Sranary

- (7) This is a proposed break-down by varieties of grain listed in column 6. Indicate if grain is suitable for seeding new crops.
- (8) Nearest railroad station for shipping and receiving.
- (9) Where stored on refuge: "Headquarters granary," etc.
- (10) Indicate here the source of grain shipped in, destination of grain transferred, data on condition of grain, unusual uses proposed.

3-1979	(NR-12)
(9/63)	

Bureau of Sport Fisheries and Wildlife

Refuge

Ninepipe

Proposal Number Reporting Year

ANNUAL REPORT OF PESTICIDE APPLICATION

Date(s) of Application	List of Target Pest(s)	Location of Area Treated	Total Acres Treated	Chemical(s) Used	Total Amount of Chemical Applied	Application Rate	Carrier and Rate	Method of Application
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
		NONE						

^{10.} Summary of results (continue on reverse side, if necessary)

3-1750 Form NR-. (Rev. March 1953)

WATERFOWL

REFUGE Abb						MONTHS (F January	ТО	Appell	, 1970
	:		W	- 6	(2)					
(3)	:			s of 1		ting				
(1) Species	1/4 - 10	VII - 17	1/18-24	1/25-31	2/1 - 7	2/8-14	2/15-21	2/22-28	3/1 - 7	3/8 - 14
Swans:	1		1	1 - 1 - 1 - 1 - 1	1	1		i	i	1
Whistling										
Trumpeter										-
Geese:				1						
Canada	1			Espiration.						
Cackling						+		+	1	
Brant	1								1	
White-fronted									1	
Snow										
Blue				0.00				-8	4	
Other								0 1000		
Ducks:						100000	10	0		
Mallard							5			
Black										
Gadwall						ESTREY IT				
Baldpate										
Pintail				400	6					
Green-winged teal		7		-000 Miles						
Blue-winged teal		1 15 18	- 9	Marie Marie						
Cinnamon teal				1 1 1 1 1 1 N N	1					
Shoveler										
Wood										
Redhead							100			
Ring-necked				18 4 3 1	1 /2-					
Canvasback					100	10-11-1				
Scaup										
Goldeneye				7		1				
Bufflehead										
Ruddy										
Other										
						1		1		
Coot:										1
				1	-	-			+	
	2. 1						1			

Cont. N. (Rev. March 1953)

WATERFOWL (Continuation Sheet)

7 1 3 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1				12	1				(3)	. /1	7
(7) Total Production:	A B	Weeks	data re	repor	ting	ner	601		Estimated	: (1	
(1) :37 Species :	15 -21	3/22-28	3/29-4/4	4/5-11	4/12-18	4/19-25	1/26-5/2	18	waterfowl days use		Estimate
Swans: Whistling	A a			orded un							
Trumpeter	934	eggin a per	7272 8	22300200	WALLES DO	DESTRUCTION OF	fact sh				
Geese:	DIA	eding are	as, Bro	od counts	should b	a made of		tore area	WERLARMOTTE	TOP OF A	170
Canada		2 20 20 20 20 20 20 20 20 20 20 20 20 20		cond baco		7.1	2	WHICH WELL	12	3 A 7 4 1	750 PT 4.0
Cackting											ka 64 ma
Brant	y ass	ortio ameg	the bolony	A survey	namper of	quater bus	SENT TOY	Georgians	168	+	1
White-fronted Snow	NJ .										
Blue			THE.				-			+	
Other TOTAL	8.04	A COMPANY OF THE PARTY OF THE P	SHOW NO.	mile bolu	atti one	9	9		2.00	+	-
Ducks:	5					2	-2				
Mallard											
Black	\$0	puse sin	eine of	onal and	250	250	250		E GEE	-	
Gadwall	505	PARTING DO	refind show	ild be ad	10	20	10	Special	atten 510 sho	ard be s	TARM
Baldpate	Tin	iddition	to the b	rds list	1 one	1/180	100	Committee	2.700	3 NE 5310	
Pintail					6	5	6		103	1	
Green-winged teal	STRIKET	CONS (See	Sacs. 7	31 throu	D 35 00		3030049	Tald Many	40		
Blue-winged teal											
Cinnamon teal			207		5/6	3.0	10		CSYG		
Shoveler		1000000							- A		
Wood					Repor	ted by	Service Const				
Redhead					5	5	5		Nos		
Ring-necked	i	86 1									
Canvasback	1										
Scaup	3	620 1			2.6	pal west	DE SERVE		160		
Goldeneye	1	1					7			A Control	
Bufflehead	1	3.2			15	15	15		315		
Ruddy	1				60	66	60		1.560		
Other er _ er	1	3			1,1,150	They weed	TUS 18518	100000	105		
TOTAL DUCES	:				510	510	510		10,710		
Coot: (2)	: Peak	Number :	Total Pr	oduction	65	65	65	SUMMARI	1,365		

Coos: (5)	(6) (7)	
Total Days Use	, , ,	ion SUMMARY
Swans		Principal feeding areas Surveyoble and fields
Geese	4.2	39 39 39 39
Ducks 10.710	530	Principal nesting areas
Coots	65	
Cinnemon teal Shoveler Wood		Reported by Bobert L. Barber
(1) Species:(2) Weeks of	In addition to the birds li reporting period should be to those species of local a	
Reporting Period:	Estimated average refuge po	pulations.
(3) Estimated Waterfowl Days Use:		x number of days present for each species.
(4) Production:	breeding areas. Brood cour	produced based on observations and actual counts on representative ats should be made on two or more areas aggregating 10% of the as having no basis in fact should be omitted.
(5) Total Days Use:	A summary of data recorded	under (3).
(6) Peak Number:	Maximum number of waterfowl	present on refuge during any census of reporting period.
(7) Total Production:	A summary of data recorded	nuder (f).

Interior Duplicating Section, Washington, D. C. 1953 Cont. N

REFUGE

3 -1750a

MONTHS OF

3-1750 Form NR-1 (Rev. Mar. 1953)

WATERFOWL

					7.01					,
			Waaba	of r	(2)	ing p	e r 1 o d			
(1)	· K/3 _ 0 :	5/10-16	5/17-23	1 5/24-30	5/31-6/6	: 6/7 - 13:	6/14-20	: 6/21-27	6/28-7/4 .	7/5-11
Species	: 1 :			: 4	5	: 6 :	7	8		
Swans:	1		1	1	1	1		ī	1	10
Whistling	1 2									
Trumpeter										
eese:										
Canada	1	25	20	20	20	20	20	20	20	20
Cackling										
Brant										
White-fronted				-	1					
Snow	5									
Blue										
CHART Total Geese	5	25	20	20	20	20	20	20	20	20
oucks:										
Mallard	225	50	50	50	50	50	50	. 50	75	75
Black										
Gadwall	45	5	5	5	5	5	5_	5	5	5
Baldpate	65	10	10	10	10	10	10	10	10	10
Pintail	35									
Green-winged teal	35									
Blue-winged teal	20	10	10	10	10	10	10	10	10	20
Cinnamon teal	5									
Shoveler	50	5	5	5	5	5				
Vood							Page 1			
Redhead					20	20	20	20	20	20
Ring-necked										
Canvasback										
Scaup					35	. 35	35	35	35	35
Goldeneye										
Bufflehead									•	
Ruddy	15	110	110	100	10	10	10	10	10	10
BENEF Merg.	20									
Total Ducks	515	190	190	180	145	145	140	140	165	175
Coot:	0	45	45	45	45	45	60	60	60	60

WATERFOWL (Continuation Sheet)

*		Week	of		2) rting	peri	o d	:	(3) Estimated	: (4 : Produc	
(1)		:		: :	: :	:	1		waterfowl	Broods:	
Species :	11	: 12 :	13	: 14 :	: 15 :	16 :	17 :	18 :	days use	: seen :	total
Whistling											
Trumpeter Geese:		+				-					-
Canada	20	20	15	20	150	300	800	(1510)	10570	2	12
Cackling	20	+			150		AUU		105/0		
Brant											
White-fronted											
Snow		1						(5)	35		
Blue								130			
ANDE Total Gooses	20	20	15	20	150	300	800	(1515)	19605	1	18
Ducks:											
Mallard	75	100	100	100	400	800	1285	(3585)	25095	1	18
Black											
Gadwall	5	5	5	5	5	5	5	(125)	. 875		
Baldpate	10	10	15	15	200	400	750	(1555)	10885		6
Pintail					1000	2000	5375	(8410)	58870		
Green-winged teal						50	50	(135)	945		
Blue-winged teal	20_	20	25	25	50	100	150	(510)	3570		24
Cinnamon teal								(5)	35		
Shoveler								(75)	525		
Wood						20	20	(40)	280		
Redhead	20	20	20	50	150	200	425	(1005)	7035		
Ring-necked											
Canvasback											
Seaup	35	35	35	35	100	150	205	(805)	5635		21
Goldeneye Bufflehead				-							
Ruddy		-		+	-						
Other	10	10	10	10-	10-	10_	10_	(168)	3255		
				-			0.55	(20)	140		10
Total Bucks:	175	200	210	240	1915	3735	8275	16735	117145	2	69
Coot:	60	60	60	60	100	200	325	(1330)	9310		15

	(5) Total Days Use:	(6) Peak Number	(7) : Total Production	SUMMARY
Swan	•			Principal feeding areas Aquatics in reservoir and sur-
Gees	10,605	800	12	rounding cereal grain fields.
Duck	117,145	8,275	69	Principal nesting areas West shore of the reserveir
Coot	9,310	325	15	
				Reported by R. L. B.
	INST	TRUCTIONS (See	Secs. 7531 through	7534, Wildlife Refuges Field Manual)
(1)	Species:	reporting pe	eriod should be adde	on form, other species occurring on refuge during the d in appropriate spaces. Special attention should be given ational significance.
(5)/	Weeks of Reporting Period:	Estimated av	verage refuge popula	tions.
(3)	Estimated Waterfowl Days Use:	Average week	cly populations x nu	mber of days present for each species.
(4)	Production:	breeding are	eas. Brood counts si	red based on observations and actual counts on representational be made on two or more areas aggregating 10% of the wing no basis in fact should be omitted.
(5)	Total Days Use:	A summary of	data recorded under	: (3).
(6)	Peak Number:	Maximum numb	er of waterfowl pre	sent on refuge during any census of reporting period.
(7)	Total Production:	A summary of	data recorded under	r (4).

3-1750 Form NR-(Rev. March 1953)

WATERFOWL

					(2)					
(1)	8/30-9/5 :9	W 0/6-9/12 :9	eeks	of re	/27-10/3:1	$\frac{1 \text{ ng pe}}{\frac{1}{2}(1-10/10)}$	10/11-10/17:10	V18-10/2k10	25-10/31:1	1/1-11
Species	1 :	2 :	3 :	4 :	5:		7 :	8:	9:	10
Swans:			1	4						
Whistling	-				12.5	15	15	15	15	1
Trumpeter										
eese:	!					P 20				
Canada	940	940	940	1,305	1,305	1,215	1,215	665	665	66
Cackling										
Brant										
White-fronted										
Snow										
Blue										
APADEN TOTAL GEESE	940	940	940	1.305	1.305	1,215	1,215	665	665	66
ucks:										
Mallard	3,250	3,250	3,250	590	590	590	450	450	450	45
Black										
Gadwall	100	100	100	_164						
Baldpate	2,525	2,525	2,525	260	260	260	155	155	155	15
Pintail	13,025	13,025	13.025	6401	640	640	125	125	125	5
Green-winged teal	300	300	300	85	85	85	135	135	135	10
Blue-winged teal	100	100	100							
Cinnamon teal										
Shoveler	50	50	50							
Wood	10	10	10	5	5	5				
Redhead	300	300	300	140	140	140				
Ring-necked			7 1							
Canvasback	100	100	100				5	5	5	
Scaup	200	200	200	75	75	7.5	5	5	5	
Goldeneye										2
Bufflehead										
Ruddy							5	5	5	
Other						1154				
TOTAL DUCKS:	19,960	19,960	19,960	1,795	1,795	1,795	880	880	880	73
oot:	6,000	6,000	6,000	3,120	3,120	3,120	100	100	100	!

3 -1750a

Cont. N (Rev. March 1953)

WATERFOWL (Continuation Sheet)

		100		7.0							
Species :	/8-11 / 14:1	Weeks 1/15-11/21 12:	of 11 /22-11/28 13	14 :	t i n g 12/6-12/12 15	12/13-12/19	12/20-12/2	612/27 -1/2 18	waterfowl	: Produ	4) ction Estimate total
Swans: Whistling	A SI	mmary of	data req	orded und	er (3).				525		
Trumpeter	07.07	osu Surn	rown: ps	remarka a	earus no	neera TH	marce and	erro no ne	const.		
Geese:	DX-94	orng sre	is, broc	d counts	should b	s marcie day	AMO OL M	0	aggregating .	region of	C DE
Canada	500	500	200	150	C	0	0	0	78,435	hra nor	SEPTAR
Cackling	42.7										120
Brant	V 4.63	see waar	A below	erotte s s	supot ot	and a live	DATE TAKE	andy shad	231		-
White-fronted	3										-
Snow Blue											-
NEXXE TOTAL GEESE:	500	500	200	150	C	0	0	0	78,435		-
Ducks:	700	700	200	150		U		0	10,433	+	
Mallard	4.00	4,00	100	100					99,890		
Black	400	ACA	100	100		77 - 17 - 1			77,570		
Gadwall			1 2 7 7	49 2		3		0 - 1 - 1	2,100		
Baldpate	50	50	in the his	ada 31 ota		0.000			63,490	1	
Pintail									289,940		
Green-winged teal		ONG / See	Sans 75	33 Abrone	6 7E31, 1	N 1 27 4 7 6 5	and a second	1242 A-11	11,620		
Blue-winged teal									2,100		
Cinnamon teal										-	
Shoveler Wood					gobos.		THOMAS TO	SCEPOS	1,050		
Redhead									315	-	-
Ring-necked	. 7	000 0				-			9,240		
Canvasback	4			7					2,205		+
Scaup	- 10	1 090			Pref no.	pal neat	ng areas		5,915	-	-
Goldeneve	50	50							875		
Bufflehead	ř J	305 1			0.67.61	l granima	in summa	modina an	30		
Ruddy	i .								140		
Other	1	15 1			Princi	ral feed	DF. ATTRA	Annahi	es in reserve	in and	
TOTAL DUCKS:	500	500	100	100	C	0	0		488,880	-	-
Coot:	· Penic	6) Winnbar :	Total Pr	oduction				SUPPLYEE	193,970		
				(00							

Total Da		(6) Peak Number	(7) Total Production	sı	UMMARY 783 880
Swans 52		15		Principal feeding areas	Aquatics in reservoir and
eese 78,43	5	1,305		cereal grains in surrour	
ucks 488,880		19,960		Principal nesting areas	5,915
oots 193,970		6,000			No.
Shoveler Wood				Reported by Robert L. Ba	arber
Cinnemon teal					53750
Pințail Orean-winged (TRUCTIONS (See	Secs. 7531 through	7534, Wildlife Refuges Fie	eld Manual)
 Species: Weeks of Reporting B 	eriod:	reporting pe to those spe	riod should be adde	ed in appropriate spaces. Snational significance.	curring on refuge during the Special attention should be given
3) Estimated W	aterfowl	Average week	ly populations x nu	mber of days present for ea	ach species.
4) Production:		breeding are	as. Brood counts		and actual counts on representative areas aggregating 10% of the ld be omitted.
5) Total Days	Use:	A summary of	data recorded unde	er (3).	525
6) Peak Number	11/8	Maximum numb	er of waterfowl pre	sent on refuge during any o	census of reporting period.
7) Total Produ	ation.		data recorded unde	ting period	: (3) : (4) : Estimated : Production

MONTHS OF September

TO December , 1970

(CARL)

Interior Duplicating Section, Washington, D. C.
1953

REFUGE Pablo

3 -1750=

3-1751 MIGRATORY Form NR-1A (Nov. 1945) (other than waterfowl) Pablo Apr Refuge..... Months of..... (5) evob begans ev. (6) (1) (2) (3)(4)Total First Seen Peak Numbers Last Seen Production Species Number Total # Total Estimated Colonies' Number Date Nests Young Number Common Name Number Date Number Date Golden sagle Duck lawk I. Water and Marsh Birds: Magpi CAN. Common Loon 20 43 Fresent 43 Crow Red-necked Grebe 5 W39 WED Eared Grebe 10 10 Way 18 Crest Blue Bures 35 W39 35 1/39 todate L. Berber Reported by INSTRUCTIONS Use the correct names as found in the A C.U. Checklist, 1931 Edition, and list group in A.O.U. pecies etc. In addition Avoid general II. Shorebirds. Gulls and other species occurring on refuge during the reporting period attention should be giver to those species of local and Nation priste spaces contiformes and geoffffes) O Wal 0 . 10 ificance immedi aradriif(rmes) W29 10 10 Strigiformes and predaceous Passe find belitd-raid 25 W39 The first refuge record for the species for the season concerned. Hirst Seen The greatest number of the species present in a limited interval of time. eak Numbers: The last refuge record for the species during the season concerned ast Seen Estimated number of young produced based on observations and actual counts, roduction

Estimated total number of the sirevo) using the refuge during the period concerned

(6) Total:

- 1	(1)	(2)	20	VSOTAS	TIM (4)		(5)
II.	Doves and Pigeons:	- 1998	<i>‡</i>	erfowl)	than wat Months	(other		- 61	lov. 1945) Refuge
	Mourning dove White-winged dove								
	White-winged dove	19	1	(4) Last S		Peak Num	daa	(2) First S	(1) Species
	Predaceous Birds: Golden eagle	Number	1/29	Number	4/29	Still	Present	Number	Common Name
	Duck hawk Horned owl								I. Water and Marab Birds:
	Magpie Raven		Access 1	\$EL:0		- 08	60%	0%	German Born
	Crow			100	65/h	8	685/9	1 6	Red-cooked (breins
			15		400/4	0.0	68,4	3.0	Nared Oakle
			. 10		6029	歌	1900/4	35	Complete States Complete
							Reporte	d by	rt L. Barber

Use the correct names as found in the A.O.U. Checklist, 1931 Edition, and list group in A.O.U. order. Avoid general terms as "seagull", "tern", etc. In addition to the birds listed on form, other species occurring on refuge during the reporting period should be added in appropriate spaces. Special attention should be given to those species of local and National significance. Groups: I. Water and Marsh Birds (Gavilformes to Ciconilformes and Gruilformes)

II. Shorebirds, Gulls and Terns (Charadriiformes)

III. Doves and Pigeons (Columbiformes)

IV. <u>Predaceous Birds</u> (Falconiformes, Strigiformes and predaceous Passeriformes)

(2) First Seen: The first refuge record for the species for the season concerned.

(3) Peak Numbers: The greatest number of the species present in a limited interval of time.

(4) Last Seen: The last refuge record for the species during the season concerned.

(5) Production: Estimated number of young produced based on observations and actual counts.

(6) Total: Estimated total number of the species using the refuge <u>during the period</u> concerned.

3-1751 Form NR-1A (Nov. 1945)

MIGRATORY BIRDS (other than waterfowl)

Refuge Pable Months of May to Sept. 19579

(6) (5) (2) (3)(4)(1) Production Total First Seen Peak Numbers Last Seen Species Number Total # Total Estimated Colonies Nests Young Number Number Common Name Number Date Number Date Date I. Water and Marsh Birds: Common Loon Previous Period 5 8/27 Still Present Bared Grebe Previous Period 25 5/8 Still Present Great Blue Heron Previous period 5/8 Still Present 20 II. Shorebirds, Gulls and Terns: Previous Period Ring billed Gull 300 St111 Present 8/27 Spotted Sand Piper 5/8 Still Present 25 7/27 1 Lon, Snipe 200 5/15 Still Present 200 5/15 2 Still Present Marbled Godwit 5/15 5/15 . 3 Likili Doer 45 7/27 45 7/27 Still Present

,			,					
	(1)	(2)	13	1	(4)		(5)	(6)
II.	Doves and Pigeons: Mourning dove White-winged dove	. Tan ∑		B 12 7				
	WILLO-WILLDOW GOVO		7,000					
IV.	Predaceous Birds:							
	Duck hawk Horned owl Magpie							
	Raven Crow		A Section 1					
	Marsh Hewk	1 9	5/8 1	5/8	Still	Present		
						Reported by	The Barrier	

INSTRUCTIONS

(1) Species:

Use the correct names as found in the A.O.U. Checklist, 1931 Edition, and list group in A.O.U. order. Avoid general terms as "seagull", "tern", etc. In addition to the birds listed on form, other species occurring on refuge during the reporting period should be added in appropriate spaces. Special attention should be given to those species of local and National significance. Groups: I. Water and Marsh Birds (Gavilformes to Ciconiiformes and Gruilformes)

II. Shorebirds, Gulls and Terns (Charadriiformes)

III. Doves and Pigeons (Columbiformes)

IV. Predaceous Birds (Falconiformes, Strigiformes and predaceous Passeriformes)

(2) First Seen: The first refuge record for the species for the season concerned.

(3) Peak Numbers: The greatest number of the species present in a limited interval of time.

(4) Last Seen: The last refuge record for the species during the season concerned.

(5) Production: Estimated number of young produced based on observations and actual counts.

(6) Total: Estimated total number of the species using the refuge during the period concerned

3-1751 Form NR-1A MIGRATORY LIRDS (Nov. 1945) (other than waterfowl) Refuge Pablo 19670 bas seved III Months of September December Mourning dove (5) evob begain efin(6) (1)(2)(3)(4)Species First Seen Peak Numbers Last Seen Production Total Number Total # Total Estimated Common Name Number Number Date Date Number Date Colonies' Nests Young Number 91/6 Golden eagle I. Water and Marsh Birds: Duck hawk Horned owl Common Loon Period 9/1 9/1 Previous 5 5 WOTD Eared Grebe 11 9/1 9/1 5 1/6 Osprev 11 Great Blue Heron 60 9/1 Still Present Robert L. Barber Reported by. INSTRUCTIONS Use the correct names as found in the A.O.U. Checklist, 1931 Edition, and list group in A.O.U. inecies: Llugaez" as amned Isreneg blovA eto. In addition II. Shorebirds, Gulls and Terns sold of courring on refuge during the reporting period should be adde: error Special attent on should be given to those species of local and National Killdeer as asmooth moo Previous Period ag 10/26 | sonsoil | pie 50 da 9/1 Terms (Charadrilf Common Snipe umbillormes) " 200 9/1 11/23 5 Strigi rds (Falconiforme Marbled Godwit 9/1 9/1 9/1 season concerned. The first re irst Seek: Spotted Sandpiper 10/10 nterval o The greatest eak Numbers Ring-billed Gull 9/1 10/26 during the season The last refige record for the species and actua Estimated number of young produced based on observations roduction Estimated total number of the s(revo) using the refuge during the period concerned.

	(1)	(2)		200	RATORY	TM (4	1)		(5)
	es and Pigeons:	December	rec	orfowl)	than wat Months	(other		o.ids	lov. 1945 Refuge. P
	rning dove								•
Total	te-winged dove	Produc	пеел	Last	1	(3 Peak Nu	пов	(2) First de	(1) Species
	daceous Birds:		Date	Number	Date	Number	Date	redmuM	Common Name
Duc! Hori	den eagle k hawk ned owl	2	9/16	2	9/16		1	10/26	1. Water and Marsh Birds:
Mag _l Rave	en		1/6	- 5	1/6	5	Period	Previous	Common Loon
Cro	W.		1/5	5	1/6	3 .	18	16	edend bend
0sp	rey	1	9/1	Still F	9/1	09	1,	9/1	Creat Blue Heren
		-	4.5					D.	
							Reporte	ed by Rober	L. Barber
(1)	Species:	order. Avoid form, other s priate spaces	l general species o s. Speci	terms as occurring of all attents: I. Water II. Show III. Dove	in the A "seagull on refuge ion shoul er and Ma rebirds, es and Pi	", "tern' during to d be give rsh Birds Gulls and geons (Co	the reporent to the reporent t	In addition cting period ose species of ormes to Cic (Charadriifor cmes)	to the birds listed on should be added in approf local and National oniiformes and Gruiiformemes) rmes and predaceous Passeriformes)
(2)	First Seen:	The first ref		ord for the		for the	season c	concerned.	recipes belog
(3)	Peak Numbers:	The greatest	number o	of the spec	cies pres	ent in a	limited	interval of	
(4)	Last Seen:	The last refu	ge recor	d for the	species	during th	le season	concerned.	
(5)	Production:	Estimated num	bon of w	1			1		
(0)			ber or y	oung produ	iced base	d on obse	ervations	s and actual	counts.

3-1:750b (Rev. Nov. 1957) FISH AND WILDLIFE SERVICE

UNITED STATES

Form NR-1B DEPARTMENT OF THE INTERIOR

edd at beblyggg ed BUREAU OF SPORT FISHERIES AND WILDLIFE

WATERFOWL UTILIZATION OF REFUGE HABITAT

Refuge Pabl	A	For 12	month period	ending Augu	st'31, 19 ₂
Reported by _	R. L. B.	Title _	Asst, Rof.	Муг	sert (I)
(1)	(2)		(3)	(4)	(5)
Area or Unit	Habitat		Areana whithe	Breeding	
Designation	Type Acreage		Use-days	Population	Production
ietailed map s		Ducks	_284_bos	100	40
secret types		Geese	99,995	B	12
initial report		Swans	77	0	0
ly be submitte	Water 1.292	Coots	72.450	95	15
their descrip	Total 2.542	Total	A58.927	139	96
	Crops	Ducks			
	TT-7 A	Geese	elwiont soon	9 1083	idsH (S)
rud funkras ba	Marsh	Swans	nd green fors	8	
entyl nisty	Water	Coots	Con tagono wo	X.	
-dua Lamosa	Total	Total	nalo eda evod	87	
condition a	Crops	Ducks			
type foods:	Upland	Geese	looding fact		
ton dud and	Marsh	Swans	abcachca dava	ar .	
" the rela-	Water	Coots	achie e ancionila	2	
driegrene g	Total	Total	alessa yleyl	ð,	
	Crops	Ducks			
Weter areas	Upland	Geese			
mejwe Dna moe	Marsh	Swans			
lisinis of an	Water	Coots			
allow plays	Total	Total	akes, deep la		-
	Crops	Ducks			
sedAt mor r	Upland	Geese			
eldissoq as	Marsh	Swans			
Lemented by	Water	Coots		-	
-ijaa easij	- Outpagedom/lefredom/led	Total	e allone seda		
				a = = = = =	69 C3 C0 E5 C9
ly water fowl		Ducks Geese		25 (4))=68U (E)
agree with	Marsh	Swans		-	
	Water	Coots	(-	ACCRETATION TO THE OWNER.
	Total	Total		20.0	baeta (A)
		(m) (m) (m)	69 69 63 63 65 65	60 60 60 CD CD	9 0 0 0 0
	Crops	Ducks	id to viogest		
	Upland	Geese	6		
o flight age.	Marsh	Swans	ajoj bejamij	5A \$H0.5J0.	
	Water	Coots			-
	Total	Total			

INSTRUCTIONS

All tabulated information should be based on the best available techniques for obtaining these data. Estimates having no foundation in fact must be omitted. Refuge grand totals for all categories should be provided in the spaces below the last unit tabulation. Additional forms should be used if the number of units reported upon exceeds the capacity of one page. This report embraces the preceding 12-month period, NOT the fiscal or calendar year, and is submitted annually with the May-August Narrative Report.

- (1) Area or Unit: A geographical unit which, because of size, terrain characteristics, habitat type and current or anticipated management practices, may be considered an entity apart from other areas in the refuge census pattern. The combined estimated acreages of all units should equal the total refuge area. A detailed map and accompanying verbal description of the habitat types of each unit should be forwarded with the initial report for each refuge, and thereafter need only be submitted to report changes in unit boundaries or their descriptions.
- Habitat: Crops include all cultivated croplands such as cereals and green forage, planted food patches and agricultural row crops; upland is all uncultivated terrain lying above the plant communities requiring seasonal submergence or a completely saturated soil condition a part of each year, and includes lands whose temporary flooding facilitates use of non-aquatic type foods; marsh extends from the upland community to, but not including, the water type and consists of the relatively stable marginal or shallow-growing emergent vegetation type, including wet meadow and deep marsh; and in the water category are all other water areas inundated most or all of the growing season and extending from the deeper edge of the marsh zone to strictly open-water, embracing such habitat as shallow playa lakes, deep lakes and reservoirs, true shrub and tree swamps, open flowing water and maritime bays, sounds and estuaries. Acreage estimates for all four types should be computed and kept as accurate as possible through reference to available maps supplemented by periodic field observations. The sum of these estimates should equal the area of the entire unit.
- (3) Use-days: Use-days is computed by multiplying weekly waterfowl population figures by seven, and should agree with information reported on Form NR-1.
- (4) Breeding
 Population: An estimate of the total breeding population of each category of birds for each area or unit.
- (5) Production: Estimated total number of young raised to flight age.

Refuge to to 19 mg

(1) Species	(2) Density	or at	(3 You Produ	ng ced	(4) Sex Ratio	R	(5) emova	ls	(6) Total	(7) Remarks
Common Name	Cover types, total acreage of habitat	Acres per Bird	Number broods obs'v'd.	Estimated Total	Percentage	Hunting	For Restocking	For Research	Estimated number using Refuge	Pertinent information not specifically requested. List introductions here.
Ring-becked a re-	670 a. uplands		e seri Losse John John	eraco ao in aloda guil evid	nisons seq on as to obs ga paldraver days type By possible, as shows as	in or table table table total table table	uon grino grino used used cou	pes. nd but de, de, id be	150	
	oo Isutaa bna snot					ESCION	20 1	edan	Estimated	(3) YOUNG PRODUCED:
no ac	s, etc. Include da		g eyso	aud T	fily to wild s.	min def.	aski ava 1		This column	
	the report period.		bevo	ga A	pach categor	nt :	ednur	Let	d sdaolbel	
	nt pariod. This m singe during certai		daing and g	b eg	ing the reft us those mig	ar m	dmun rid d	Laden	Estimated include re	
			os do Cline	dalu dt s	etermine pog niorastion	od dra	bess altr	Sonte q rac	n edecibnī do ebuloni	
				besu	ed blooms b	rtevo	o bol	geg s	able to th	tiqqs samulos yino *

INSTRUCTIONS

Form NR-2 - UPLAND GAME BIRDS.*

(1) SPECIES:

(2) DENSITY:	Applies particularly to those species considered in removal programs (public
	hunts, etc.). Detailed data may be omitted for species occurring in limited
	numbers. Density to be expressed in acres per animal by cover types. This
	information is to be professed by a statement from the refuse manager as to the

Use correct common name.

information is to be prefaced by a statement from the refuge manager as to the number of acres in each cover type found on the refuge; once submitted, this information need not be repeated except as significant changes occur in the area of cover types. Cover types should be detailed enough to furnish the desired information but not so much as to obscure the general picture. Examples: spruce swamp, upland hardwoods, reverting agriculture land, bottomland hardwoods, short grass prairie, etc. Standard type symbols listed in Wildlife Management Series No. 7 should be used where possible. Figures submitted should be based on actual observations and counts on representative sample areas. Survey method used and size of sample area or areas should be indicated under Remarks.

- (3) YOUNG PRODUCED: Estimated number of young produced, based upon observations and actual counts in representative breeding habitat.
- (4) SEX RATIO: This column applies primarily to wild turkey, pheasants, etc. Include data on other species if available.
- (5) REMOVALS: Indicate total number in each category removed during the report period.
- (6) TOTAL: Estimated total number using the refuge during the report period. This may include resident birds plus those migrating into the refuge during certain seasons.
- (7) REMARKS: Indicate method used to determine population and area covered in survey. Also include other pertinent information not specifically requested.

^{*} Only columns applicable to the period covered should be used.

Refuge

Pablo

UPLAND GAME RIRDS

Months of May

to sept.

19 70

(1) Species	(2) Density	Number broods obs'v'd. Estimated Total		(4) Sex Ratio	(5) Removals			(6) Total	(7) Remarks			
Common Name	Cover types, total per acreage of habitat Bird			Percentage	Hunting	For Restocking For		Estimated number using Refuge	Pertinent information not specifically requested. List introductions here.			
	to furnish the design of the following and hardwood to the following ement of the following method with the marks.	ed in T ubmitte e areas	ures :	rion Imbol Fig Stive	ypes should set as to ob reverting a start type set on represent reas should	oda, Sta whe nts	d cos	and l rie, ld be ns ar	No. 7 show			
ešmu	on Isutos bns snoit	viesdo	noqu	Desc	produced, ag habitat.					YOUNG PRODUCED:		
	s, etc. Include da	heasant	1 1/00/	girð f		pris ilab			This column	SEX RATIO:		
	the report period.	during	bevos	er y	each catego	r in	numbe	Lado	Indicate t	REMOVALS:		
	ort period. This s efuge during certai									TOTAL:		
	covered in survey, equested,	d area cally r	ion an pecift	taluc s don	tetermine po information	od drin	eszv rijre	ethoc	Indicate m	REMARKS:		
								ř				
		=		been	ed should be	ISVO	lod c	isq a	if of eldge	nly columns appli		
1191	1 1 1 2 A			,								

INSTRUCTIONS

Form NR-2 - UPLAND GAME BIRDS.*

(1) SF	PECIES:	Use correct common name.			
formation requeste	Pertinent in specifically speci	Applies particularly to those hunts, etc.). Detailed data numbers. Density to be expressinformation is to be prefaced number of acres in each cover information need not be repeat	may be omitted for spe sed in acres per anima by a statement from t type found on the ref	ecies occurring in limited al by cover types. This the refuge manager as to th Tuge; once submitted, this	on Name
		of cover types. Cover types information but not so much a swamp, upland hardwoods, revergrass prairie, etc. Standard No. 7 should be used where posservations and counts on resize of sample area or areas	s to obscure the gener rting agriculture land type symbols listed i ssible. Figures submi presentative sample ar	ral picture. Examples: spr d, bottomland hardwoods, sh n Wildlife Management Seri tted should be based on ac reas. Survey method used a	ruce nort les tual
(3) YC	OUNG PRODUCED:	Estimated number of young pro- in representative breeding ha		ervations and actual counts	3
(4) SE	X RATIO:	This column applies primarily other species if available.	to wild turkey, pheas	ants, etc. Include data o	on
(5) RE	CMOVALS:	Indicate total number in each	category removed duri	ng the report period.	
(6) TO	TAL:	Estimated total number using include resident birds plus to			asons.
(7) RE	MARKS:	Indicate method used to determine the include other pertinent information			

^{*} Only columns applicable to the period covered should be used.

(April :6) Months of September to December , 19 70 Refuge Pablo Form NR-2 - UPLAND GAME BIRDS.* (3) (4)(1) (2) (6) (5) (7) Young Sex Species Density Removals Total Remarks Produced Ratio occurring in limi data may be For Restocking earch Estimated Number broods obs'v'd. Estimate Total Hunting Acres number Pertinent information not saced by a using specifically requested. Cover types, total per For Common Name acreage of habitat Percentage Refuge List introductions here. Bird to furnish the des che oleture. Examples spruce do of as don 80 SCUITE Ring-necked riculture reverting a aboumbus Pheasant 670 a. upland ndard type s 250 ubmitted should be based on actual Figures re possible. riw No. 7 should be usec Survey method used and sinrob bus ambijaviesdo on representative size of sample area or areas should be indicated under Remarks. (3) YOUNG PRODUCED: Estimated number of young produced, based upon observations and actual country in representative breeding habitat. This column applies primarily to will turkey, theasants, etc. Include data on Cavellable, other apadies Indicate total number in each category removed during the report period, Estimated total number using the refuse during the report period. This say include resident birds plus those migrating into the refuge during certain seasons. Indicate rethod used to determine population and area covered in survey. Also include other partirent information not apacifically requested. * Only columns applicable to the period dovered should be used

Tedme Jaes INSTRUCTIONS

Form NR-2 - UPLAND GAME BIRDS.*

(1) SPECIES:	(1)	SPECIES:
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Use correct common name.

(2) DENSITY:

specifically requested.

List introductions here.

Applies particularly to those species considered in removal programs (public hunts, etc.). Detailed data may be omitted for species occurring in limited numbers. Density to be expressed in acres per animal by cover types. This information is to be prefaced by a statement from the refuge manager as to the number of acres in each cover type found on the refuge; once submitted, this information need not be repeated except as significant changes occur in the area of cover types. Cover types should be detailed enough to furnish the desired information but not so much as to obscure the general picture. Examples: spruce swamp, upland hardwoods, reverting agriculture land, bottomland hardwoods, short grass prairie, etc. Standard type symbols listed in Wildlife Management Series managed No. 7 should be used where possible. Figures submitted should be based on actual observations and counts on representative sample areas. Survey method used and size of sample area or areas should be indicated under Remarks.

(3) YOUNG PRODUCED:

Estimated number of young produced, based upon observations and actual counts in representative breeding habitat.

(4) SEX RATIO:

This column applies primarily to wild turkey, pheasants, etc. Include data on other species if available.

(5) REMOVALS:

Indicate total number in each category removed during the report period.

(6) TOTAL:

Estimated total number using the refuge during the report period. This may include resident birds plus those migrating into the refuge during certain seasons.

(7) REMARKS:

Indicate method used to determine population and area covered in survey. Also include other pertinent information not specifically requested.

^{*} Only columns applicable to the period covered should be used.

SMALL MAMM

Year ending April 30, 1970 Refuge ALS (Include date on all apecies of importance in the management program; i. e.,

(1) Species	Density	ni bereb	one		(3) ovals		n of			(4) ion of		rtnegs	600	(5)
ok of North	. white-tailed jackral found in the "Field B.	use are	ina	el. curr	mt a	e yaz sass	el, g	Share	Trap	oing	Refuge Shipped	ted		Total Popul
	Cover Types & Total Acreage of Habitat	Per	Hunting	Fur Harvest	Predator Control	For Re- stocking	For Re-	Permit Number	0 40	Refuge share	Total Ref Furs Ship	Furs Donated	Fure Dastroyed	tion
Meadow Mouse Deer Mouse Striped Skunk Bedger Columbian Groundsquirre Weasel Coyote Muskrat	670 a. upland	ent from found ted exc mosh a much a rdwoods e, etc. hould b	ate typ epe r t t s t s d h atr	a al system of the control of the co	d by not can es. es. up, up, erie d on met	eface need r typ r typ raki swa e short ent base	cres cove info spruc ods, nages ld bs	m is to describe a to red to mera describes: describes diffe Ma ted short	en e					Low Roderat 2 30 Low 2
atory Animal	ory removed since Apri refuge by Service Pred g under headingslisted	edi no	m nie	my t	lag i	nelud	E ,TB	wions ye	rzq		:23	(TO)(E)	(3)	
aken by Service use of unprime- ther agencies	Predator Animal Hunte	nose lo dose lo dagon e	hip Lte fu	ts a f pe and	isq 1 o 1so .coli	o red 1 aus 1 aus	ann a Tota aged	icate th	red red	UE TO	HOTEX	ISPO	(11)	

bna , snotjouborist . (e) asta elquas to esta , basu (e) bodiem viotneval etablial any other pertinent information not epecifically requested. .

> Robert L. Barber Reported by

Year ending April 30,

Form NR-4 - SMALL MAMMALS (Include data on all species of importance in the management program; i. e., muskrats, beaver, coon, mink, coyote. Data on small rodents may be omitted except for estimated total population of each species considered in control operations.)

SHALL MANON

(1) SPECIES:

Use correct common name. Example: Striped skunk, spotted skunk, short-tailed weasel, gray squirrel, fox squirrel, white-tailed jackrabbit, etc. (Accepted common names in current use are found in the "Field Book of North American Mammals" by H. E. Anthony and the "Manual of the Vertebrate Animals of the Northeastern United States" by David Starr Jordan.)

(2) DENSITY:

Applies particularly to those species considered in removal programs.

Detailed data may be omitted for species occurring in limited numbers.

Density to be expressed in acres per animal by cover types. This information is to be prefaced by a statement from the refuge manager as to the number of acres in each cover type found on the refuge; once submitted, this information need not be repeated except as significant changes occur in the area of cover types. Cover types should be detailed enough to furnish the desired information but not so much as to obscure the general picture.

Examples: spruce swamp, upland hardwoods, reverting agriculture land, bottom land hardwoods, short grass prairie, etc. Standard type symbols listed in Wildlife Management Series No. 7 should be used where possible. Figures submitted should be based on actual observations and counts on representative sample areas. Survey method used and size of sample area or areas should be indicated under Remarks.

(3) REMOVALS:

Indicate the total number under each category removed since April 30 of the previous year, including any taken on the refuge by Service Predatory Animal Hunter. Also show any removals not falling under headingslisted.

(4) DISPOSITION OF FUR:

On share-trapped furs list the permit number, trapper's share, and refuge share. Indicate the number of pelts shipped to market, including furs taken by Service personnel. Total number of pelts of each species destroyed because of unprimeness or damaged condition, and furs donated to institutions or other agencies should be shown in the column provided.

(5) TOTAL POPULATION:

tendrati ... Rarber

Estimated total population of each species reported on as of April 30.

REMARKS:

Indicate inventory method(s) used, size of sample area(s), introductions, and any other pertinent information not specifically requested.

INTERIOR -- PORTLAND, OREGON

3-1758 Form NR-8 (Rev. Jan. 1956)

Fish and Wildlife Service Branch of Wildlife Refuges

CULTIVATED CROPS - HAYING - GRAZING

Refuge Pablo		智量 8 首	3 5	County	Lake	2 5 Sq.		_ Sta	te Montana	•
		ittee's		rnment's S			2 49 E		Manure,	1
Cultivated Crops	Share Harvested		E 18	vested	A 4	rvested	Total Acreage	Cover and Water- fowl Browsing Crop		s Total
Grown	Acres	Bu./Tons	Acres	Bu./Tons	Acres	Bu./Tons	Planted	Type	and Kind	Acreage
outhoses guring the lear.	at separately the kinds of im	eqorD gatamad LwolmeteW bas the sqorp seed to gorp set the sqorp seed the gorp set that the crop results from a	ed - Beport all screege plants			are issue u of Indi		Ronan,	are collecte Montana.	IN TORON - HAZING - CHANING
No. of Permittees:	Agricultur	al Operation	ons Nor	ne	Haying	Operations	None	_ Grazi	ing Operations	al a
Hay - Improved (Specify Kind)	Tons Harvested	Acres	Cash Reven	the second second	GRAZING	Numl Anir	- C - SON - NO - NO - NO - NO - NO - NO - N	AUM'S	Cash Revenue	ACREAGE
	I India	1 bill in the control of the control	Call	1.	Cattle	87		348	*	1,500
	Fa 127 . 120.	5 2 6	15 B	2	Other	A B 发 44A	W. No	gla	2 2 2 1 ·	
	THE PARTY OF	Tropic of	8	2 6 2 3	Owier	1101	200	13		
stores	be term Tannuk	a ega Liquib	boo?	1.		efuge Acres	age Under (ultivat	tion	0

DIRECTIONS FOR PREPARING FORM NR-8 CULTIVATED CROPS - HAYING - GRAZING

Report Form NR-8 should be prepared on a calendar-year basis for all crops which were planted during the calendar year and for haying and grazing operations carried on during the same period.

Separate reports shall be furnished for Refuge lands in each county when a refuge is located in more than one county or State.

Cultivated Crops Grown - List all crops planted, grown and harvested on the refuge during the reporting period regardless of purpose. Crops in kind which have been planted by more than one permittee or this Service shall be combined for reporting purposes.

Permittee's Share - Only the number of acres utilized by the permittee for his own benefit should be shown under the Acres column, and only the number of bushels of farm crops harvested by the permittee for himself should be shown under the Bushels Harvested column. Report all crops harvested in bushels or fractions thereof except such crops as silage, watermelons, cotton, tobacco, and hay, which should be reported in tons or fractions thereof.

Government's Share or Return - Harvested - Show the acreage and number of bushels harvested for the Government of crops produced by permittees or refuge personnel. Unharvested - Show the exact acreage and the estimated number of bushels of grain available for wildlife. If grazing is made available to waterfowl through the planting of grain, cover, green manure, grazing or hay crops, estimate the tonnage of green food produced or utilized and report under Bushels Unharvested column.

Total Acreage Planted - Report all acreage planted, including crop failures.

Green Manure, Cover and Waterfowl Grazing Crops - Specify the acreage, kind and purpose of the crop. These crops and the acreage may be duplicated under cultivated crops if planted during the year, or a duplication may occur under hay if the crop results from a perennial planting.

Hay - Improved - List separately the kinds of improved hay grown. Annual plantings should also be reported under <u>Cultivated Crops</u>, and perennial hay should be listed in the same manner at time of planting.

Total Refuge Acreage Under Cultivation - Report total land area devoted to agricultural purposes during the year.

NATIONAL BISON RANGE
NINEPIPE REFUGE
PABLO REFUGE

Refuge Narrative Report
Calendar Year 1970

UNITED STATES DEPARTMENT OF THE INTERIOR

Bureau of Sport Fisheries and Wildlife Fish and Wildlife Service Moiese, Montana

NATIONAL BISON RANGE

Refuge Narrative Report

Calendar Year 1970

PERMANENT PERSONNEL

Marvin R. Kaschke, Refuge Manager
Robert L. Barber, Assistant Refuge Manager
Victor B. May, Refuge Maintenanceman Foreman
Grant Hogge, Heavy Duty Mechanic
Ernest W. Kraft, Maintenanceman III
Sharon A. Scammon, Clerk-Typist (trans. Wildlife Services, Denver)
Susan I. McCollum, Clerk-Typist (E.O.D. 08/06/70)
Edward G. Krantz, Maintenanceman I, WAE
Robert L. Middlemist, Maintenanceman I, WAE
William J. Lampshire, Maintenanceman I, WAE
Carl F. Hruska, Student-Trainee

TEMPORARY PERSONNEL

Robert L. McVey, Laborer Wayne A. Wetzel, Laborer Randell E. Evans, Laborer Nancy A. Larum, Work-Study Employee Gail Evans, Work-Study Employee Mary Pat Coulter, Work-Study Employee David L. Knudsen, Work-Study Empolyee Cindy Doty, NYC Rita McLeod, NYC Brad McCrea, NYC George McLeod, NYC Douglas Morigeau, NYC Dan Hogge, NYC Brad Neil, NYC Dean McVey, NYC Audie Stiner, NYC Victor Lumphry, NYC

$\underline{\mathtt{T}} \; \underline{\mathtt{A}} \; \underline{\mathtt{B}} \; \underline{\mathtt{L}} \; \underline{\mathtt{E}} \quad \; \underline{\mathtt{O}} \; \underline{\mathtt{F}} \quad \; \underline{\mathtt{C}} \; \underline{\mathtt{O}} \; \underline{\mathtt{N}} \; \underline{\mathtt{T}} \; \underline{\mathtt{E}} \; \underline{\mathtt{N}} \; \underline{\mathtt{T}} \; \underline{\mathtt{S}}$

I.	GEI	NERAL.	Pag	ge
	A. B.	Weather Conditions	. 1	2
		2. Food and Cover	1 & 2 &	
II.	WI]	LDLIFE Migratory Birds		
		 Waterfowl	3 &	4
	В	4. Mourning Doves	4	
	C.	Big-Game Animals		
		1. Bison	5	
		3. Mule Deer	8	
		4. White-tailed Deer	9	
		5. Bighorn Sheep6. Antelope		10
		6. Antelope	10	
		8. Longhorn Steers	11	
		9. Black Bear	11	
	D.	Fur Animals, Predators, Rodents and other		
_	TT)	Mammals	11	
	E.	Hawks, Eagles, Owls, Ravens, Magpies Other Birds	12	
	G.	Fish	12	
	Н.	Reptiles and Amphibians	12	
	I.	Diseases		
		1. Bison	13	
		2. Elk	13	
		3. Deer	13	
		4. Bighorn Sheep	13	
TTT.	REFI	JCE DEVELOPMENT AND MAINTENANCE		
		Physical Development		
		1. Refuge Work Program	13 &	14
		a. Fence Construction and Repair	13 &	
		b. Roads and Bridges	14	
		c. Building Maintenance	15	
		d. Automotive Equipment Maintenance e. Miscellaneous	15 16	
	В.	Plantings	10	
	-	1. Trees and Shrubs	16	
		2. Upland Herbaceous Plants	16	
	C.	Collections and Receipts	- /	
		1. Seed and Other Propagules	16	
		2. Specimens	17	

TABLE OF CONTENTS (Con't.)

		Page
	D. Control of Vegetation 1. Biological Control	17 17 17 17
IV.	RESOURCE MANAGEMENT	
	A. Surplus Buffalo Disposal 1. Live Disposal	17 & 18 19 19
V_{\bullet}	FIELD INVESTIGATION OR APPLIED RESEARCH	
	A. Bison Age-Weight and Longevity-Refuge Personnel B. Range Condition and Trend-Refuge Personnel C. Waterfowl Banding-Refuge Personnel D. Social Behavior in Bison NER-4Dr. Lott E. Behavior Patterns of American Bison Calves F. A Study of the Socail Behavior of the Pronghorn	20 20 20 21 21
	AntelopeG. A Study of the Abundance and Distribution of Rodent in Relation to Vegetative Distribution of Rodents	
	in Relation to Vegetative Types on the NBR H. A Study of the Primary Productivity of a Rough Fescue (Festuca Scabrella), Grassland in Western	22
	MontanaNBR*12 Morris	25
	Montanus in Western Montana NBR Frank Graves Jr. J. Ruminant Digestion Process of Big Game Animals on	26
	the National Bison Range—Dr. Oh and Guy Connolly. K. Animal Tracking from Satellites NASA—Smithsonian.	26 26
VI.	PUBLIC RELATIONS A. Recreational Uses B. Refuge Visitors C. Refuge Participation	27 28 & 29 29 - 30 31
	D. Hunting	32 32 33 34

TABLE OF CONTENTS (Contt.)

			Page
VII.	OTH	ER ITEMS	
		Items of Interest 1. Training	34 35 35 36 36
VIII.	SAT	ELLITE REFUGES	
	A.	Ninepipe text	36
	В.	Pablo text 1. Pablo NR Forms	8

NATIONAL BISON RANGE

Refuge Narrative Report

January 1 to December 31, 1970

I. GENERAL

A. Weather Conditions

Annual weather conditions are described as generally fair, with desirable temperatures and above normal precipitation. One short period of extreme cold was recorded January 5 and 6, when the temperature dropped to -22° and -17° respectively. Temperatures moderated and by January 13, the high was 50°. Conditions were so normal we seldom heard the favorite weather comments; "Its the hottest, or coldest, or driest, or wetest season we've ever had."

The following data are from Refuge weather station records:

		Precipitation			
	Snowfall	This Month	Normal	Max. Temp.	Min. Temp.
January	911	1.66	•95	52	-22
February	9불	.88	.66	55	17
March	5	1.05	.69	59	4
April		1.36	1.08	72	15
May		2.28	1.78	87	28
June		2.11	1.99	97	34
July		2.54	1.00	101	38
August		-23	.87	102	37
September		82	.98	84	19
October	Tr.	1.56	1.06	86	15
November	10	•26	.80	58	- 6
December	4½	•13	.88	54	0
	38"	14.88	12.74		

B. Habitat Conditions

1. Water

Irrigation water was plentiful for maintaining the exhibition pasture and picnic area in green and growing condition. Above normal precipitation helped in limiting the need for irrigation.

Ground moisture was adequate throught the summer to maintain good plant growth. Springs flowed freely, providing ample water for the bison and other game animals.

A problem of too much water was encountered on the Jocko River during late spring. Heavy rains fell in upper drainages of the river in mid-May. This, coupled with warm temperatures, caused the Jocko to overflow its banks. When water started flooding, two neighboring ranchers became concerned it might wash out their fish ponds. These ponds had been constructed in the old river channel, to replace fishing habitat lost by rechanneling, as shown on the map.

In a moment of panic the ranchers and a Soil Conservation Service Technician came rushing into the office and accused us of causing the flooding conditions. They stated a log jam in a bend of the river on Bison Range property was posing a threat to flooding downstream. Upon investigation, we determined the problem originated several years hence, and was caused from ranchers straightening the stream and pushing it to one side of the valley. They then rip-rapped the banks. Unfortunately engineering design failed to allow enough for high water, as seen in photo.

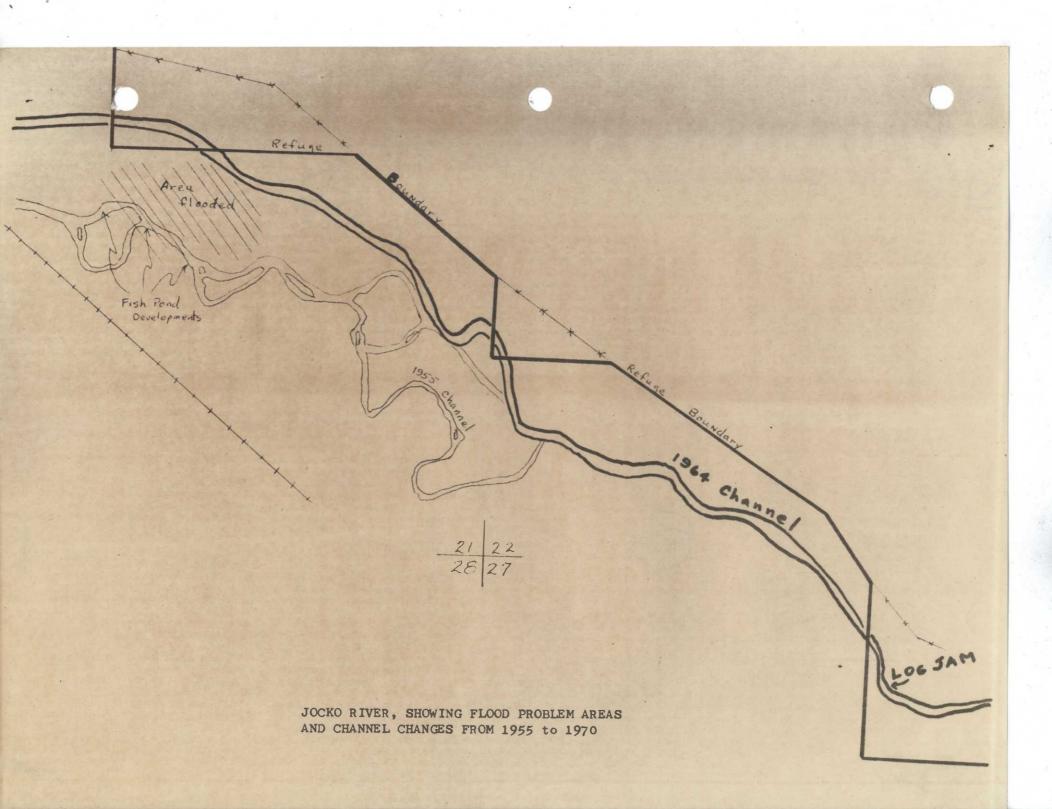
Needless to say we were reluctant to remove the log jam, since it provided some of the only remaining trout habitat. This was once one of the best trout streams in the state. After some heated discussions with the ranchers and SCS personnel we made a public relations effort to remove the log jam. Fortunately, high water made it impossible to accomplish.

We later made it known to the SCS that their technical advice to ranchers was poor and not appreciated. We also questioned, why Agriculture Stablization Conservation Service made payments for rip-rapping streams that had been straightened. This caused much commotion, and resulted in a joint meeting with SCS and ASCS local and state personnel, State Fish and Game fisheries biologist, local ranchers, and Bison Range personnel. It was determined, a joint study was necessary to properly plan future so-called stream improvement and flood control projects. It was berbally agreed to stop all rechanneling and rip-rap until an over-all plan could be developed for approximately six miles of the river.

Fish and Game and Bison Range personnel are attempting to get the stream back into its meand ring channel before agreeing to allow any more rip-rapping.

2. Food and Cover

Both food and cover were abundant to meet the needs of Refuge objectives and for maintaining big game numbers. Ranges continued to improve by using the deferred rotational grazing system.



As a result of clipping studies conducted by Mel Morris of the University of Montana (see report on page 24) some interesting data was obtained. Data showed 566 pounds of grass per acre produced on Idaho fescue type and 1420 pounds per acre on rough fescue types. Total biomoss, including all litter standing and dead and total live vegetation, revealed 2178 lbs/acre on Idaho fescue compared with 6187 lbs/acre on rough fescue sites. Clipping studies were accomplished in four acre enclosures constructed prior to the growing season. This indicates the tremendous potential of native vegetation.

II. WILDLIFE

A. Migratory Birds

1. Waterfowl

Whistling swans were observed only once during the year on the Bison Range, when two were noted at Ravalli ponds in early April.

The mid-winter waterfowl survey, conducted January 5, revealed two Canada geese, 910 Mallards, five Green-winged Teal, 75 Goldeneyes, and 30 Common Mergansers on Mission Creek and the Jocko River. A few more geese were noted the following week, bringing the total to approximately 30, which remained through the winter.

A few migrants were noted on Ravalli ponds in mid-March.

Geese along Mission Creek were on nests by late March and first broods were observed April 26. A minimum of five broods, totaling about 30 young were produced in the headquarters area.

Duck broods were seen at Ravalli ponds, headquarters display pool, and the elk pasture pond throughout the summer. Production was estimated at 80 Mallards, 10 Widgeon, 30 Blue-winged Teal and 30 Redheads.

Fall populations built to around two thousand Mallards along Mission Creek once hunting season got underway. By December however, numbers stood at 40 Canada geese, 630 Mallards, 5 Greenwinged Teal, 75 Goldeneyes and 15 Common Mergansers.

2. Other Water Birds

Small numbers of Great Blue Herons were present along Mission Creek. Jocko River and Ravalli ponds throughout the year.

3. Shorebirds

Killdeer were seen as early as January 5, and were common over much of the range through spring and summer months. Common snipe

were heard winnowing in headquarters area all spring and summer. They were last seen along Mission Creek on December 3. Small numbers of Wilson's and Northern Phalaropes were noted at Ravalli ponds and Spotted Sandpipers were present in about normal small numbers.

4. Mourning Doves

First doves were observed in the vicinity of headquarters on April 8, about two weeks earlier than last year. Doves were, as usual, not numerous, but well distributed over most of the Range. Young were produced in the headquarters and slaughterhouse areas as in past years. Total number using the Range is estimated to be less than 300 birds.

B. Upland Game Birds

Upland birds had a good year with possible exception of Chukar partridge.

Richardson blue grouse were seen in most higher portions of the Range. At least five broods, averaging 2.5 young, were recorded. One large group, totaling 19 birds was observed near High Point in late September. The year-end population is estimated at 70 birds.

Although Ruffed Grouse are known to inhabit both the Jocko River and Mission Creek bottoms, only one observation was made during the year. Drumming males were heard frequently along the Jocko, but none were actually seen.

The status of the Columbian Sharptailed Grouse on the Range is still largely unknown. A pair of birds was seen on two occasions in Alexander Basin during March, but no other observations were made this year.

Plans for further introductions have been temporarily stalled by a request from Idaho Fish and Game Department for a new agreement with the State of Montana. Both states had verbally agreed to exchange Sharptails for turkeys at a rate of five to one. Fifteen birds were trapped in 1969, but little has been seen of them since. We hope to acquire at least 75 to 100 birds during 1971 to insure a reasonable chance of a successful re-introduction.

Ring-necked Pheasant broods were recorded along Mission Creek and in the Pauline drainage, averaging 8.0 young per brood. Opening of Pheasant season produced the usual influx of several hundred birds into Mission Creek bottoms.

Chukar partridge are still at very low levels following severe losses during the '68-'69 winter. Only three broods were actually recorded compared to six last year. Chukars have done quite well

in the past building to populations of 200-300 birds, but a rough winter usually makes heavy inroads on them. At year's end the population was estimated to be 30.

Gray partridge are apparently extremely well suited to the Bison Range habitat and climate. They are seen in every part of the refuge from High Point to headquarters and seem to thrive in even the roughtest of winters. Production was estimated at 800 young and the year—end population at 1200.

For the second year a single Turkey was seen roosting along Mission Creek near the refuge entrance.

C. Big-Game Animals

1. Bison

The Buffalo deferred-rotation grazing program was followed as scheduled for herd number one. One change was made in rotation of the smaller herd. This stemmed from changes made in 1969, which was required to make animals available to the public during the summer tour season. In this case, grazing periods for the southwest and upper north ranges were switched.

The Sheep pasture was opened and grazed in conjuction with the upper south range during April-May and June in order to reduce pressure on the upper south. This, too, was a result of previous changes brought about by the need to have herds available along the tour route.

As mentioned in the 1969 report, the basic design of the rotation was such that once every four years both herds would be scheduled for ranges far from the public view. This occurred in 1969 and the rotation was altered to correct the problem. Of course, one change calls for another. Thus alterations in the schedule for 1970. One further change will be required in 1971 and both herds will be in a new rotation. This will always assure at least one group to be available for public viewing throughout the tour season.

Calves were first observed April 20, about the same time as in 1968, but almost two weeks later than last year. By the first of June there were 66 of these frisky, rust-colored critters in the herds. Round-up in October, produced a total of only 67 calves through the corrals. One calf was known to have died during the summer and apparently others were lost but not located as at least 69 were tallied in July. The initial calf crop was at least 72%, and the crop at round-up was 70% from 96 breeding age cows, the poorest in recent years. (see table below)

ANNUAL CALF PRODUCTION 1956 - 1970

15 Year Average - 88%

Year	Production	Year	Production
1956	92%	1964	94%
1957	84%	1965	94%
1958	95%	1966	85%
1959	90%	1967	85%
1960	80%	1968	85%
1961	94%	1969	95%
1962	84%	1970	70%
1963	91%		

There is no concrete evidence to explain the low calf crop, but Leptospirosis is suspected. The problem has been discussed with the local USDA Veterinarian and he explained "Lepto" will flare up occassionally, producing short calf crops, and then die down for a period of years. Since immunization from disease requires annual vaccination of all animals it is felt an occasional low calf crop must be accepted, rather than attempt the nearly impossible vaccination task. The calf sex ratio was nearly equal this year (34F:33M) for the first time in three years. The ratio was heavily slanted toward females in 1968 and 1969.

Annual roundup, held the first week in October, showed a total of 396 animals. At least three bulls escaped our efforts and remained on the range. Both herds were worked through the corrals separately, and bulls were again rotated from one herd to the other.

John Corcoran, DVM, and Bob Manlove, Livestock Inspector, both USDA officials, again accomplished the brucellosis and pasteurella vaccination and ear-tattooing. Thirty-four heifer calves were "Bangs" vaccinated, and all calves received pasteurella shots. All were branded with "O" on the upper left hip, and tattooed with "V-O" inside the left ear. The year brand was moved from the lower hip to the top of the rump this year to facilitate brand reading. Animals are worked from ramps so reading brands is an annual problem. Eighty live-sale animals were ear and back tagged for ease of sorting and handling.

Range herd #1, totaling 195 animals, was released in the north-side range and herd #2 with 113 head, was turned into the southwest range. The display herd at headquarters numbers five animals. Sex ratio of the herd is 84M:100F, a total of 103 breeding age cows were returned to the range.

Known herd losses this year totalled eight animals. Two bulls, five and 14 years of age, were killed because of injuries. Meat was donated to local schools. A 10 year old bull with a suspected pasteurella infection was killed, the meat was not useable. Bulls of three, nine and ten years were found dead, probably from fighting. One calf was found dead, and a blind calf with an infected mouth, caused from injuries received in the corral, was destroyed after round-up.

The following table presents herd composition data at the end of the year:

BISON HERD COMPOSITION. DECEMBER 31, 1970

Age Groups	Male	Female	Total	Animal Units
Calf	33	32	65	19.5
Yearling	23	33	56	35.9
2	19	17	36	32.6
3	13	11	24	26.8
4	7	13	20	21.5
5	13	7	20	27.1
6	15	19	34	44.5
7	9	11	20	26.3
8	2	8	10	11.4
9	2	5	7	8.6
10	4	3	7	10.2
11	1	5	6	6.8
12	0	2	2	2.0
13	0	2	2	2.0
14	1	0	1	1.8
15	0	3	3	3.0
16	0	11	1	1.0
Totals	142	173	314	281.0

Note: Animal units are based on average weights of each age and sex class, with one animal unit being equal to a 1000 pound animal.

2. Elk

Elk population data was somewhat puzzling this year to say the least! Last year's data showed the herd numbered 53 head on December 31, but highest count obtained in 1970 was only 39, including seven new calves. During the annual big game count in March, 34 head were accounted for, but observers stated they were sure other animals got past them without being seen. During late summer and early fall it appeared one cow-calf herd was being missed consistently. Two possibilities present themselves:

1. Part of the herd escaped the refuge, or 2. The two main cow-calf herds were using over-lapping portions of the range and we were only seeing one group at a time. We suspect the latter is the case since small composition changes were noted. Another group of approximately the same number would bring the total to what it should be. Since no acceptable census could be obtained no disposal was conducted this year. Two adult bulls were collected for research on rumen digestion conducted by Dr. Oh and Mr. Guy Connolly. (See research Section)

Herd data observed was as follows: total cows: calves, 100446; herd sex ratio 100F:90M.

Again several adult bulls spent most of the summer along Mission Creek, much to the delight of the visiting public. During the rut they moved up to the elk display pasture area, challenging the display bulls and fighting with them through the fence. Their ability to reshape and modify a woven—wire fence is nothing short of spectacular.

One calf was added to the display herd this year, bringing the total to six animals. One of the adult cows in the display pasture was used in a preliminary telemetry study conducted by N.A.S.A., the Smithsoian Institution, and the Montana Cooperative Wildlife Research Unit. (See Research Section)

3. Mule Deer

The Mule deer population was estimated at 217 animals at the first of the year. The annual big game count in March produced an actual count of 239 so that figure was adopted for reporting purposes. Three composition counts were conducted to determine surplus and set disposal quotas. Known natural losses were seven, including three semi-tame animals brought in by Montana Fish and Game. Herd composition and disposal data are summarized in the following table:

MULE DEER HERD COMPOSITION & DISPOSAL-1970

Sex & Age	Pre-Disposal	Disposal	Balance	
Adult bucks	57	1/4	43	
Yearling bucks	50	21	29	
Adult does	81	37	44	
Yearling does	50	18	32	
Fawns	81		81	
Total	319	90	229	

The observed adult doe: fawn ratio was 100:100 and total doe: fawn ratio was 100:62. Adult portion of the post-disposal consisted of 49% males and 51% females. End of year population was estimated at 229.

4. White-tailed Deer

White-tailed Deer were "guesstimated" at 189 animals on January 1, 1970. The annual count in March, however, totalled only 108 head and a compromise figure of 150 was adopted. Bison Range White-tails present usual census problems associated with the species, so data are always somewhat in doubt. Last year's composition counts showed a very high doe: fawn ratio which probably led to an over estimate of total numbers. Samples were likely not representative, but estimates must be based on what is seen and not just on what is thought or desired.

Only three animals were known to be lost, including one orphan fawn brought in by Montana Fish and Game. Herd composition counts were made three times during late summer and early fall to set disposal quota. Composition and disposal data are summarized in the following table:

WHITETAIL HERD COMPOSITION & DISPOSAL-1970

Sex & Age	Predisposal	Disposal	Balance
Adult bucks	56	21	35
Yearling bucks	21	9	12
Adult does	53	10	43
Yearling does	21	9	12
Fawns	67	3	64
Totals	218	52	166

Adult doe: fawn ratio was 100:126 and total doe: fawn ratio was 100:91. The Adult portion of the post-disposal herd consisted of 46% males and 54% females. The end of the year population including orphan fawns brought in, was estimated at 168.

5. Bighorn Sheep

The Sheep herd was swelled again by 10 new lambs, the same production noted last year. Four animals were removed for research projects. One 7 year old ewe was collected because of obvious poor condition and sent to the laboratory for disease analysis (see disease section.) Two adult rams were taken for Dr. Oh and Mr. Connolly and one yearling ram was immobilized and transferred to the Utah State Coop. Wildlife Research Unit. This left 48 animals on the range at year's end. The observed sex ratio was 100F: 105M.

Considerable difficulty was experienced in immobilizing the ram for the Utah State Unit. Although "tried and proven" dosages, recommended by an acknowledged expert, were used, several adult rams failed to yield to the drugs. Dosages were recommended by John Stelfox. of the Canadian Wildlife Service, who has had many years experience with immobilants and Bighorn sheep. Dr. Bart O'Gara, of the Montana Coop Unit, administered drugs, starting with 90mg. of Succostrin (succinylcholine chloride.) At least three adult rams received this dose with little reaction other than a certain amount of hyperventilation after about 10 minutes. Dosage was increased to 95 and 100mg. without success. Sernylan at 115mg. was tried, producing some slight staggering in adult rams after 5 to 10 minutes. This dose finally put a yearling ram down long enough to be hog-tied and blindfolded. He was packed off the mountain and placed in a transportation crate with no difficulty. He was on his feet ten minutes later. We might add, these dosages were considered extremely heavy by Dr. O'Gara, but he felt the rutting activity had the rams" cholinesterase level so high they were conteracting the drugs.

We believe little trouble would have been encountered in this project if we could have somehow, communicated with these rams to let them know 30 ewes were waiting patiently at Utah State facilities for some male companionship!

6. Antelope

The Pronghorn herd numbered 114 in January. An excellent crop of 62 fawns was dropped, but fawn mortality was very high. By the end of July only 30 fawns were observed, on September 1, there were 22, and by mid-October only 21 survived. "Susie" the pet doe in the display pasture failed to fawn this year, though we are certain she was bred.

Dave Kitchen, Ph.D. student from University of Michigan, was practically living with them while doing his behavior research, (see research section) and he was never able to find a carcass or sick animal. No explanation for the loss can be offered since no evidence has been found. Contacts with Dr. O'Gara and other antelope authorities in the state indicate this situation is not unusual. The same thing was experienced this year in a few herds in Eastern Montana. It has also been observed in the past.

Other known losses include two bucks collected for Dr. John Oh and Mr. Connolly's research, two bucks found dead, apparently winter

losses, and one buck found dead from fighting injuries.

The population stood at 130 head at years end. Composition of the herd after losses was 55 bucks, 54 does and 21 fawns.

7. Rocky Mountain Goat

The goat population increased with new kids to 15 head. One nanny and one billy were collected for Dr. Oh and Mr. Connolly leaving 13 animals at the end of the year.

8. Longhorn Steers

The Texas Longhorn "herd" remains at two very fat individuals.

9. Black Bear

A sow and two cubs were seen in Elk Creek in early June. In September another group of the same composition was observed in lower Pauline Creek, approximately four miles from the first sighting. In 1969 at least two adult animals were sighted, so the two observations this year may be of different animals.

D. Fur Animals, Predators, Rodents and other Mammals

Coyotes have again become a common sight on the Range and observations were made in nearly all parts of the refuge throughout the year.

One adult Bobcat was observed on Wildhorse Mesa in September and a single Kitten was seen near the east boundary on the same day.

Badger, skunks, and Long-tailed weasels were observed on several occasions.

Porcupines were abundant, as usual. Some damage to trees noted.

Columbian ground squirrels were first observed in the display pastures on March 12, about a week earlier than last year. The wood pile on the north of Mission Creek again held a sizeable colony of Yellow-bellied marmots. A few of these chunky rodents took up residence under the old cow barn, but evaded our efforts to live-trap and transplant them.

Mountain Vole populations continued at the exceptionally high levels of 1969 until early June when they suddently took a nosedive. Few mice were noted after that time. The I.B.P. small

mammal team experienced difficulty in obtaining samples when they arrived. (See research section)

No predator or rodent control was conducted, except for normal small numbers of feral house cats and problem days.

E. Hawks, Eagles, Owls, Ravens, Magpies

Hawk observations were much the same as past years with exception of a Pigeon Hawk seen in Trisky Creek in late March. Up to 15 or 20 Rough-legged Hawks were commonly noted during winter months. Red-tails were first noted March 7, nearly a month earlier than last year. A single Cooper's Hawk was seen at headquarters in February. Sparrow Hawks seemed lower in numbers compared to 1969, some reproduction was noted.

Golden Eagles were seen year around with a peak of at least five noted in late September. No nests were located but we are reasonably certain nesting occurs on the Range.

Short—eared owls were relatively low compared to past years. Five were noted in Mid—January, but few were seen the rest of the year. One Long—eared owl was observed near Indian Springs in March, and an occasional Great Horned Owl was seen near headquarters during the summer.

Ravens and crows were seen in small groups, particularly in early spring and Magpies were common year-round residents.

F. Other Birds

No new species were recorded during the year, but avid birders were never disappointed with the variety offered. The usual large compliment of warblers, towhees, wrens, and various sparrows were present along many small creeks and brushy areas of the Range. In late March a very large group (several hundred) of Mountain Bluebirds was noted in the Slaughterhouse area. Headquarters had its usual large concentration of nesting species.

G. Fish

Trout fishing along the Jocko River was generally good, although occasional periods of roily water made it tough on, the died-in-the-wool, fly fishermen. Several three to five pound fish were reported, generally by bait fishermen.

H. Reptiles and Amphibians

Western rattlesnakes were observed on many occasions over most of the Range. One Rocky Mountain Rubber Boa was seen near Tower

Three, and a few Bull snakes were also recorded. Painted turtles were numerous in the Elk Pasture pond and headquarters display pool. One long-toed Salamander was found in a window-well at headquarters.

I. Diseases

A ten year old bull bison crippled with severely swollen joints, was disposed of in September. <u>Pasteurella multocida</u> infection was suspected, but laboratory tests were inconclusive. The meat was condemmed as a precaution against the possibility of <u>Pasteurella</u>.

Many live-sale bison were tested for Brucellosis and Tuber-culosis. All results were negative.

Blood samples of deer and elk taken during annual disposal, were analyzed for Brucellosis, Leptospirosis and Anaplasmosis. All samples tested negative.

A mule deer fawn, brought in by Montana Fish and Game Department personnel, developed a peculiar staggering illness and was finally destroyed and sent in by the local veteranarian for testing. Apparently the specimen did not arrive in good enough condition for tests to be completed. A Whitetail fawn developed similar, though not as severe, symptoms and was successfully treated with antibiotics.

During the annual big game count a ewe Bighorn sheep in extremely poor condition was observed. It was subsequently collected and sent to the Bozeman Laboratory for autopsy and disease analysis. Laboratory reports indicated the animal carried a heavy load of internal and external parasites, including ticks, lice, nematodes, whip, and nodular worms, tapeworm cysts, and lungworm larvae. Skeletal inspection showed a broken but mended lumbar vetebrae; broken, deformed pelvic girdle; three broken ribs; numerous calcium deposits in several areas and several porcupine quills lodged in the right leg against the bones. Otherwise it was 0.K.

III REFUGE DEVELOPMENT AND MAINTENANCE

A. Physical Development

1. Refuge Work Program

a. Fence Construction and Repair

Two miles of Elk Creek fence, entending from the sheep pasture to the south boundary was rebuilt. The 55" wire was

salvaged and re-used so it conforms with our latest design of interior or Antelope type fence.

The division fence from High Point east, was relocated through the head of Trisky Creek and down Turkey Woman draw to the boundary. This will make it less visible from the tour road and eliminate damage from drifting snow encountered in past years. A total of 1.6 miles of fence was involved. The old interior fence must be removed to complete this project.

Three cattle guards on the tour route were widened by adding an additional 8' guards at each installation. Special end wings were constructed and tied into the fences. So far this has eliminated buffalo jumping these guards.

Bison Corrals were improved by additional cat-walks, piping water to each holding pen and lining the pipe corrals with plywood to prevent animals from injuring themselves in these pens.

A number of high quality juniper fence posts were salvaged from dead and down juniper trees in Mission Creek bottoms.

All interior fencing was inspected and repairs made as required. The Boundary fence was also inspected and routine main-tenance performed.

b. Roads and Bridges

The boundary road was bladed twice this year. Additional blading was necessary in late summer due to extensive weed growth following initial work.

A total of 256 cubic yards of crushed gravel was hauled from the Bureau Crusher and spread on the tour road in lower Pauline Creek. This road has now received crushed gravel from headquarters to the cattle guard midway up Pauline Creek for a total distance of 2.8 miles.

The tour road was bladed once, and two additional trips were made with the rock rake. It was kept in good condition through out the tour season.

An additional coat of oil and 5/8" chips was applied on the Exhibition Pasture tour road. Chips were crushed by the Bureau crusher and spread by the Lake County road maintenance crew. An additional 1500 gallons of oil was used to patch shoulders and coat turnouts. Total cost of the job was \$1,328.

The Bureau rock crusher was intermittently operated when time and weather permitted. Approximately 1700 cubic yards

were crushed, the bulk of which remains in a stockpile for future use on the refuge tour road.

c. Building Maintenance

Building #26: Exterior walls of the Slaughter house were covered with white 26 guage baked—enamel steel siding. The edging, trim flushing are colored green. The job was contrasted by Northern Builder's Exchange for \$1725.48. In addition the small apartment in this building was improved by paneling walls, sheeting the ceiling and painting.

Building #11: The exterior walls of the horse barn was covered with 26 guage galvanized steel siding, colored white. Corners, edgings and flashings were dark green to conform with adjacent buildings. This job was accomplished under contract, by Bryant Builders at a cost of \$2037.20.

Building #72: Old shingles of this building were removed and replaced with new stick tab asbestos shingles.

Building #4: Major renovation of the office interior was completed. The front and middle offices were combined into one room by removal of a wall. The front portion is now utilized for displays, photos etc. for the visiting public. The clerk occupies the back portion making her available for reception and information. The small apartment in the rear of the building was remodeled and is used as office for the manager and assistant manager. This job consisted of paneling the walls, installing ceiling tile, replacing windows, doors, lighting fixtures and covering the floors with commercial carpet. Exterior stucco walls were painted with white cement paint.

Buildings #15-16-18-20: Metal roofs of each of these buildings were cleaned of loose material and dark green fiberglass texture paint applied. This job was accomplished under contract.

Building #19: A new 125,000 B.T.U. forced air oil furnace was installed in the automotive and carpenter shop.

Quarters #63: A new formica counter top was installed in the kitchen.

d. Automotive Equipment Maintenance

Major repair and maintenance work accomplished included; engine overhaul on the rock crusher, rebuilt jaws on crusher, complete overhaul of fire pump engine, installed power hydraulic system on the rock rake, rebuilt bucket on back hoe, overhauled front differential on pickup I-75650, installed protective cab on

TD18A tractor dozer. Necessary minor repairs and 5,000 mile preventative maintenance check were performed as required.

e. Miscellaneous

Fifty-nine picnic tables were moved into the shop, sanded, and given a coat of penta-base redwood stain, and stored in the picnic shelter for the winter.

A small parking area and interpretive stop was developed near the display pond. This will be the take off point for a wildlife interpretive trail that will follow around the display pond and along lower Mission Creek. The trail was trenched, lined with plastic to prevent weed growth, and filled with reject gravel. Piling was driven for two foot bridges on the trail. This project is approximately 75% complete.

During the spring run off, a large drift formed in the Jocko River near the refuge boundary. This caused considerable cutting of the bank and threatened to cut through on to adjoining private property. A jetty was constructed, and the danger spot rip-rapped. This involved hauling 156 cubic yards of rock and placing it along the bank.

A considerable number of existing signs were refinished and new signs constructed.

A total of 39 tons of hay was harvested from headquarter's meadows and exhibition pasture, and stored in the horse barn.

A total of 550 bushels of barley was hauled from the Kootenai Refuge and stored for winter feeding and banding at the Bison Range, Ninepipe, Pablo Refuges.

B. Plantings

1. Trees and Shrubs

None.

2. Upland Herbaceous Plants

The annual accumulation of barnyard manure and spoiled hay was used to mulch approximately four acres of bare spots east of headquarters. These areas were seeded four pounds per acre, with a mixture of Western wheat and Alta fescue.

C. Collections and Receipts

1. Seed and Other Propagules

Two hundred pounds each of Timothy, Yellow Sunset Clover were received from Kootenai Refuge.

2. Specimens

The following Specimens were all preserved for addition to the refuge collection:

Species	Number	Type
Whistling Swan	l	Frozen
Willet	1	Frozen
Sand Hill Crane	1	Frozen

The Sand Hill Crane was found dead. The Willet and Whistling Swan were seized as evidence during enforcement work.

D. Control of Vegetation

1. Biological Control

Goat weed beetle, <u>Chrysolina quadrigemina</u>, remained widely distributed, in very limited numbers. No significant plant control by beetles was noted.

2. Chemical Control

Aerial spraying to control goatweed was continued. A total of 1569 acres in the Upper North range, Antelope Ridge, and switchbacks were treated with a 2,4-D Amine, water mix, applied @2 pounds acid equivalent per acre. Apparent kill was quite high, but a further check next Spring will confirm the results.

Canada thistle control was continued, using ground spray equipment. Areas of high infestations along roadsides, canal banks, horse pasture and picnic area were treated with 1:100 mix of 2,4-D Amine and water, applied @2 pounds acid equivalent per acre. Initial results appeared good.

E. Planned Burning

None

F. Fires

None

IV. RESOURCE MANAGEMENT

A. Surplus Buffalo Disposal

1. Live Disposal

Eighty animals were sold alive on the basis of a sealed, competitive bid sale. Thirty-seven bids were received, with the bid awards going to twenty-one buyers for a total of \$27,501.78, or an average of \$343.77 per admimal, as summarized below:

Number	Age Group	Total Bids	Ave./Animal
38	Yearlings	\$11,553.90	\$304.05
18 5	Two-year old Three-year old	6,610.76 2,007.11	367.26 401.42
2	Four-year old	725.00	362.50
7	Six-year old	2,902.33	414.61
2	Seven—year old Eight—year old	427.11 854.22	427.11 427.11
3	Eight-plus cows	1,128.33	376.11
4	Eight-plus bulls	1,293.02	323.25
Total		\$27,501.78	\$343.77

Buyers names and the number of animals they purchased follows:

South Everett Lion's Everett, Wash.				Jack Boyd Columbia Falls, Mt. 1
Gary Kruger Dillon, Mt.	1	G.Marion Hinkley Provo, Utah		Emmett Burley Spokane, Wash. 2
Harold Wright Heppner, Oregon	9	James Burnett Luther, Mt.	2	Paul Piper Blue Earth, Minn. 2
Ronald Gregory Longmont, Colo.	26	R.C.Keyser, MVD Ronan, Mt.	1	Leavenworth Sportsmen's Club Leavenworth, Wash. 1
Paul Greig Medical Lake, Wash.		Peter Redhorn Browning, Mt.	4	Jack Hash Roscoe, Mt. 2
William Becker Santa Barbara, Calif.		Robert Schall Arlee, Mt.	16	Lewistown Lion's Club Lewistown, Mt. 1
Wade Kinchloe Melstone, Mt.		Fred Gillard Ravalli, Mt.	1	Roy Curtis Vaughn, Mt. 1

The live sale was again successful and the only animals butchered were those taken for humane reasons. Meat collected from these animals was donated to local schools for use in their hot-lunch programs.

2. Sale and Donation of Hides and Skulls

Five hides and one head with hide (skinned for mount,) from the 1969 disposal program were sold. The head for mounting, an eleven-year old bull, brought \$201. Parts of bison skeletons were donated to John Summers, National Retesting Station, Idaho Falls, Idaho, vertebrae were donated to Western High School, Anaheim, California, and skeletons, skulls, hides, and hoofs were set aside for later pick up by school science departments.

B. Surplus Elk and Deer Disposal

1. Meat Disposal

One elk and 140 deer taken during the fall disposal were distributed to Montana schools for use in their hot-lunch program. One elk was again sold to the Lake County 4-H Council Junior Fair, in accordance with prior authorization. A handling charge of 15¢ per pound of dressed meat was charged to help defray collection costs. Estimated comparative annual costs for this program are summarized below:

Disposal cost -per animal		\$26.33
Revenue - meat-per animal	\$14.62	
Revenue - hides & antlers	3.52	
		18.14
	4	-\$ 8.19

C. Proceeds of Sales

Total receipts and number of sale items for the year 1970 were as follows:

	Number	Amount
Live buffalo	80	\$27,501.78
Deer and elk meat	13,644 Lbs.	2,046.60
Buffalo hides	5	138.00
Elk hides	11	67.50
Deer hides	126	420.00
Antlers	54	211.50
Bull buffalo head		
for mounting	1	201.00
Bull elk heads for		
mounting	2	155.00
Antelope hide	1	25.00
Texas Longhorn steer		
hides	2	20.00
Whitetailed deer tails	46	23.50
Employee's horse grazing		
fees and hay		88.00
Refuge wood	6 cord	42.00
Marsh concession		675.77
Sale of surplus property		30.51
Total Receipts		\$31,434.69

V. FIELD INVESTIGATION OR APPLIED RESEARCH

A. Bison Age-Weight and Longevity-Refuge Personnel

Most of the buffalo were weighted during roundup to obtain data for comparison with previous years. Weights are summarized in the following table:

		NUMBER	AVERAGE	EXTR	
ACE	SEX	WEIGHED	WEIGHT	LARGEST	SMALLEST
Calf	M	33	31 3	410	150
	\mathbf{F}	31	302	385	150
1불	M	21	666	770	525
	F	24	577	665	420
$2\frac{1}{2}$	M	21	1018	1255	820
	F	18	846	915	755
3½	M	7	1176	1380	1045
~	\mathbf{F}	8	916	1000	785
41/2	M	6	1502	1665	1420
~	F	13	922	990	815
5 1 /2	M	12	1592	1900	1370
~ ~	F	6	1008	1115	895
6 <u>1</u>	M	15	1651	1775	1480
~	\mathbf{F}	16	960	1070	810
7호	M	9	1746	1890	1610
~	F	12	958	1080	855
81/2	M	1	1800		-
£-	F	7	951	1020	860
9불	M	3	1862	1960	1800
· ~	F	5	958	1000	895
10+	M	5	1729	1910	1635
	F	15	1049	1205	970

The above data is included here merely for the record as comparisons with earlier data show little except weights are highly variable within age classes. We were hoping the weights would reflect improving range condition trend, however changes, if any, are subtle inconsistent, probably insignificant.

B. Range Condition and Trend-Refuge personnel

Two additional Parker 3-Step transect clusters were established, bringing the total to 23. Plans call for at least three clusters in each range unit, to be read on a four year cycle.

C. Waterfowl Banding-Refuge personnel

Post season banding at Bison Range headquarters was conducted

In January and February utilizing the recoilless rock net. A total of 259 Mallards and seven Canada geese were banded at a cost of \$1.15 per bird. An additional 44 returns and four foreign retraps were handled.

Preseason banding attempts were unsuccessful. Very few Mallards were in the area prior to hunting season and none were attracted to the baits.

D. Social Behavior in Bison NBR-4-Dr. Lott

Dr. Lott again worked on the Range during rutting season and prepared the following report on his progress:

"This summer two aspects of bison behavior were studied.

Analysis was begun of the form and stability of dominance hierarchies amont mature males in a herd during the breeding season. The data indicate that there is a relatively stable dominance hierarchy between individual pairs of males, but this does not result in a linear hierarchy among all males in the group. There was clear evidence of the existence of six triangular dominance hierarchies.

The second major emphasis was a continuation of studies of the relationship between estrus and the attractiveness of females to males. This year's study, like last years's, revealed that there is a marked variation in the attractiveness of females, which is often but not always, related to their estrus cycle."

E. Behavior Patterns of American Bison Calves at the National Bison Range-NBR-6-Engelhard

Mr. Engelhard's thesis was finally completed and received this year. The abstract is included here although the study was done in 1967.

ABSTRACT

A field study of the behavior of Bison Bison calves was made at the National Bison Range in Montana during the 1967 spring calving and through the summer rut. Since no previous behavioral studies of this herd had been accomplished, an effort was made to determine similarities and differences between their patterns and those of other herds under different management and ecological situations.

Observations were made of 90 calves born into a herd which demonstrated conspecific as well as interspecific influences. A major problem was obtaining close observations of the early life on the calves. Cows that were about to calve were extremely wary; in time, as their calves gained independence and social integration, however, the herds were more readily approached. Shortly after birth the young showed behavior that was related mostly to its own growth;

but as peer relationships developed and the herd responded to seasonal changes, these factors had greater influence on the calf. Parturition most often occurred while the cow was within the group. Only a few cows left the herd immediately afterward but all appeared to go through an intimate relationship (bonding period) with their young.

Development of calves was considered in the following periods: first day, first week, first month three months and weaning time. During the bonding period the young became aware of their environment and by the fourth week joined a peer group and spent time apart from the dam. By the third month, the rut had begun; bulls courting cows unintentionally contributed to the weaning. Calves imitated adult actions, and their unborn behavior was continually modified by social behavior of the herd. Most were weaned before they were yearlings though some year—old individuals continued to suckle.

Accounts are included of two unusual situations: the behavior of twin calves, and the involuntary fostering of a stray calf by a cow that already had a calf of her own.

F. A Study of the Social Behavior of the Pronghorn Antelope-NBR-9
David Kitchen

The purpose of the study is to describe and analyze social behavior of the pronghorn antelope, and its relationship to other animals on the range. Work is being done by Dave Kitchen in fulfillment of Ph.D. requirements for the University of Michigan.

Dave Kitchen returned to the Bison Range in early May and plans to stay until his field work is completed this summer. He had accumulated 876 hours of actual behavioral observation as of November 1, 1970. Fourty-four behavioral acts have been described, and the variations and temporal patterns have been followed through over 1200 interaction sequences.

A copy of his second progress report is included at the end of this report.

G. A Study of the abundance and Distribution of Rodents in Relation to Vegetative Distribution of Rodents in Relation to Vegetative Types on the National Bison Range-NBR-11 -Mel Morris

The objective of this study are:

- (1) To determine species and density (number) per acre of mice and pocket gophers by major grassland types (five types).
- (2) To determine species and desity per acre on paired excellent condition range and weedy types for each of the five major grassland types.
- (3) To determine species and density of paired weedy types as is, and with litter removed.

Field work was carried out by Jerry Hagen during the summer of 1969 and results are summarized in the table on the following page. No field work was done in 1970 because of the ILB.P. project.

BISON RANGE RODENT STUDY-SUMMARY; 1969

•				VEGETATION TYPES							
AREA	AREA LOCATION	DATE	ATE TRAP DAYS		Idaho Fescue	Three Awn	Western Wheat Grass	Cheat Grass	Weed		
2	Headquarters	7/14-7/18	496	16	36		23				
4a	Pauline Creek	8/10-8/14	98	7	19+1*						
4b	Pauline Creek	8/10-8/14	98		6			8			
5	Slaughter House West	8/20-8/25	98		6	0					
6	Slaughter House East	8/26-8/31	98		2+1*	0					
7	Snake Pit	10/3-10/6	98	3+1*		1+1*					
8	Pauline Creek	9/7-9/12	98			1			5+2		

^{*} First number is for Microtus montanus, second number for Peramyscus maniculatus

Field work - Jerry Hagen Compiled by - M. S.-Morris

1970

		lough Fesc Stand	ue	Idaho Fe	Idaho Fescue-Bluehunch Stand					
Date	Grasses	Forbs Frams/sq.	Total m.*	Grasses Gr	Forbs ams/sq. m	Total				
4/15	7.36	1.04	8.41	5.56	1.42	6.98				
5/2	16.93	10.49	27.42	17.54	14.52	32.06				
5/16	37.39	14.39	51.78	31.05	15.73	46.78				
5/30	77.50	39.74	117.24	47.92	47.83	95.75				
6/17	115.78	70.83	185.63	58.50	39.28	98.17				
7/2	159.20	69.52	227.85	63.44	45.33	109.69				
7/16	124.72	56.80	181.60	62.16	31.48	93.64				
8/4	148.20	43.16	191.36	74.36	29.75	102.44				
8/25	111.33	27.74	139.07	65.85	17.51	83.36				

^{*} oven dry wt.

Rough fescue stand represents a climax stand. The Idaho fescue-bluebunch wheatgrass stand is a stand resulting from past close grazing. Sites are not fully equivalent but approximate it. To convert to pounds per acre multiply by 9. This table is not for distribution.

Table Soil moisture conditions for the growing season at the location with moderately close grazing history. Soil moisture determined gravimetrically. Values underscored have available soil moisture (above - 15 bars):

Soil Depth	4/12	4/25	5/17	Gra: 5/30	zing His 6/16	7/3		7/30	se Graz 8/6	2ing 8/21	8/27	9/17	10/1	10/22
cm						- Pero	cent -							
0- 5	32.9	39.9	40.5	31.3	28.2	18.2	17.7	22.4	15.1	8.1	6.0	15.9	11.9	28.2
5- 10	29.6	33.4	35.0	30.3	25.6	17.0	13.5	17.7	14.1	7.3	8.2	10.6	9.9	27.8
10- 20	25.7	39.2	39.4	31.5	23.2	15.1	10.4	15.5	13.2	6.8	7.1	10.4	8.0	20.5
20- 30	27.9	39.3	36.4	30.0	22.1	12.9	9.9	9.2	11.8	9.2	7.1	6.4	7.6	8.9
30- 40	18.5	. 22.6	27.8	22.2	16.9	12.9	9.9	8.2	12.2	9.5	6.0	5.5	6.7	5.4
40- 50	17.9	27.7	28.2	24.7	16.6	15.0	14.0	15.6	13.1	10.7	8.1	4.9	5.2	5.4
50- 60	16.2	26.9	29.1	26.1	20.9	19.4	11.7		11.1	9.4	6.9	5.3		
60- 70	14.1	20.4	22.5	24.2	17.3					7.1	7.1	5.9		
70- 80	9.9											6.1		
80- 90	7.4													
90-100	8.5													

Table . Seasonal trends of various components of above ground biomass for two locations in Fescue grassland with corresponding grazing histories (Treatment 1 - light to no grazing and treatment 2- moderately close grazing). 1970 growing season. Yields in gms per sq. mf

	grazing).								g and tr	eatment	2- moderately
Biomass				(Grazing H	listory -	Light t	o none			
Component	4/15	5/2	5/16	5/30	6/17	7/2	7/16	8/4	8/25	9/26	10/31
Standing Live	8.41	27.42	51.78		185.63			161.03	60.82	27.69	25.95
Standing Dead, 1970	0.00	0.00	0.00	0.00	0.00	9.10	13.34	30.87	78.83	95.37	124.89
Standing Dead, 1969	153.05	140.50	130.73	137.60	91.25	106.63	39.14	46.45	31.53	11.42	0.00
Litter	175.00	180.49	123.67	182.12	146.91	220.30	273.91	329.36	334.57	308.60	243.40
Total	336.46	348.41	306.18	436.96	423.79	555.05	494.63	567:71	505.75	443.08	394.24
Biomass Component	4/15	5/2	5/16	5/30	Grazin 6/17	g Histor	y - Mode 7/16	rately C 8/4	8/25	9/26	10/31
Component											
Standing Live	6.98	32.06	46.78	95.75	98.17	97.50		81.76	43.17	43.29	16.68
Standing Dead, 1970	0.00	0.00	0.00	0.00	0.00	12.19	11.50	20.68	40.19	39.01	61.14
Standing Dead, 1969	56.80	66.89	47.69	62.41	48.52	36.56	20.27	22.82	12.22	1.13	
Litter	55.19	44.79	36.91	26.56	35.92	50.80	73.05	55.51			
Total	118.97	143.74	131.38	184.72	182.61	197.05	186.96	180.77			

ta - Malar

Table Soil moisture conditions for the 1970 growing season at the location with light to no grazing soil moisture determined gravimetrically. Values underscored have available soil moisture (above -15 bars).

Soil Depth	4/25	5/17	5/30	6/16	7/3	Grazing 7/16	History 7/30	- Ligh 8/6	t to No 8/21	one 8/27	9/17	10/1	10/22
cm							Percen	t					
0- 5	49.3	55.1	38.0	33.3	26.5	23.0	19.3	14.1	7.4	3.7	16.2	13.7	25.5
5- 10	40.4	43.9	32.4	29.8	22.8	18.6	12.3	9.4	8.1	5.9	10.7	8.6	23.5
10- 20	40.3	44.9	33.8	29.5	23.4	14.0	10.4	9.9	8.0	5.8	. 7.6	6.8	22.6
20- 30	43.1	43.7	33.8	29.4	21.9	12.7	9.3	9.1	7.5	7.1	7.2	6.0	18.2
30- 40	37.3	36.7	31.8	27.4	20.0	10.4	8.4	7.7	6.4	5.6	6.2	4.1	6.9
40- 50	32.1	26.3	23.2	22.5	12.5	7.7	6.3	5.1	3.6	3.4	4.9	3.1	3.9
50- 60	23.0	19.7	16.4	16.9	11.8	5.6	3.9	4.5	4.2	-3.9	3.4	3.6	3.4
60- 70	17.0	11.1	10.3	16.4	9.0	4.9	-4.0	3.8	4.6	4.3	3.7	3.7	3.9
70- 80	9.5	9.9	7.5	8.9	8.4	4.7	4.5	3.9	4.2	4.7	4.1		4.1
80- 90	9.0			10.1	11.4	5.5	5.3	4.8	4.3	4.4	4.2		4.8
90-100	8.8					5.6	5.7	5.1	4.9	5.2	4.9		6.4

I. Habitat Segregating Mechanisms in Sympatric Populations of Microtus Pennsylvanicus and Microtus Montanus in Western Montana NBR-13-Frank Graves Jr.

This study is being conducted by Mr. Frank Graves, Master's student at the University of Montana. His purpose is to determine niche relationships between coexisting populations of Microtus Pennsylvanicus and M. Montanus.

Mr. Graves did not start his work until this fall and spent most of his time designing his equipment and making initial field tests. He plans to get underway again this coming Spring.

J. Ruminant Digestion Processes of Big Game Animals on the National Bison Range- Dr. Oh and Guy Connolly.

Dr. John Oh and Guy Connolly of the University of California, Hopland Field Station, Hopland, California visited the Bison Range during November 2-10, 1970 to study ruminant digestion processes in antelope, mule deer, white-tailed deer, elk, bighorn sheep, and mountain goat. These animals depend upon symbiotic microorganisms in the rumen and hind-gut for the digestion of their forage, just as domestic livestock do. Although domestic animals have been studied extensively, little is known about these microbial fermentation processes in wild ruminants. Oh and Connolly measured the basic fermentation rates in the rumen and hindgut (caecum) of two animals of each species listed above (only 1 mountain goat). The fermentability of representative samples of range grasses, forbs, and browse by rumen microbes from each animal was also studied, and food habits will be determined by examination of rumen samples from each animal. The Bison Range was an ideal site for these comparative studies because of the large variety of wild ruminant species utilizing the range in comman. It is hoped that these studies will help to explain the differences in food habits and animal performance among big game species, and contribute to a better understanding of big game forage requirements.

In their field work at the Bison Range, Connolly and Oh were assisted by the refuge staff, Bart O'Gara of the Montana Cooperative Wildlife Research Unit, and Melvin S. Morris of the University of Montana School of Forestry. Connolly served as student trainee at the Bison Range in 1959 and 1960.

K. Animal Tracking from Satellites-NASA-Smithsonian

This project, started during the spring of 1969, and was terminated in February of this year. The objective was to test

a radio-instrument collar on one of the Bison Range display elk in order to work out problems prior to placing the collar on a free-roaming animal.

Most of the activity during 1969 involved various experimental "dummy" collars to determine their effect on the animal and their durability. On January 22, 1970, however, the refuge was invaded by a small army of N.A.S.A., Smithsonian Institution, and Montana Coop. Wildlife Research Unit technicians with the operational collar.

The cow elk was immobilized with M-99 and the crew moved in rapidly, placed the collar on the animal with practiced speed, and the antagonist drug was administered. The elk was on her feet in a few minutes, and the collar was monitored with ground based equipment. About an hour later the Nimbus-3 weather satellite passed over and triggered the collar, monitored its' signal and passed the information to a ground station in Alaska. The N.A.S.A. people made a telephone call to Goddard Space Flight Center in Maryland and received the information relayed from the Satellite. They were able to determine the elks location, skin temperature, altitude above sea level and the ambient temperature.

The collar was removed in February and placed on a freeroaming elk at the National Elk Refuge at Jackson, Wyoming. Newspaper accounts told, the collar ceased operating sometime last summer. The animal was shot during hunting season this fall and the collar was recovered.

VI. PUBLIC RELATIONS

A. Recreational Uses

Public use of the refuge increased nearly 16% this year, from 79,400 to 91,730 actual visits. The period from May through September accounted for 70% of the total, or 64,005 visitors. The 19 mile self-guided tour route drew 38,925 visitors or 42% of the total.

The \$1.00 per car fee for the Self-guided tour was suspended this summer pending action on Golden Eagle legislation and later was eliminated entirely. It was very interesting to note the number of comments from the public wondering why no fee was charged. In fact, several people left money at the entrance self-service leaflet dispenser even though signs informed them no fee was required.

Visitors were recorded from all 50 States, Puerto Rico, and 44 Foreign countries. Sampling showed approximately 76% of the

people during the summer months were visiting the refuge for the first time. About 30% reported using the picnic area. The picnic area and display pasture route accounted for the majority of public use during the period when the self-guided tour route was closed.

School group use was quite heavy through the spring months, particularly in May. Approximately 1,460 students made use of the range for environmental education. An additional 450 students viewed the annual round-up activities in October, and many other groups wanted only to tour the range for a day's "outing."

B. Refuge Visitors

Aug. 20

Jan. 7 Norton Minor-B SFW, Billings (courtesy visit) Joe Zacek, S.C.S., Missoula-(Range Society Paper) Jan. 15 Jan. 22 John Craighead, BSFW-Mont. Univ. Missoula(elk Telemetry proj.) Jan. 22 Frank Craighead, Environmental Research Inst. Moose, Wyo. Jan. 22 Keith Walters, NASA Greenbolt, Maryland(elk telemetry proj.) Jan. 22 James Maxwell, Smithsonian Inst. Cambridge, Mass. (elk proj.) Jan. 22 Charles Kurvin, Radiation, Inc.-Melbourne, Fla. (elk Proj.) Jan. 22 Joel Varney, Mont. Coop. Unit, Missoula (elk project) Jan. 22 Charles Cote, NASA-Greenbolt, Md. (elk project) Jan. 22 Leo Heffron, Radiation, Ind.-Melbourne, Fla. (elk project) Jan. 22 Harry Reynolds, Mont. Coop. Unit-Missoula (elk project) Jan. 22 Vince Yannone, Mont. Coop. Unit-Missoula (elk project) Jan. 22 Jim Lynch, NASA-Greenbolt, Md.(elk project) Larry Peterson-BSFW-Kalispell-(courtesy visit) Feb. 5 Feb. 13 Owen Vivion, BSFW-Benton Lake NWR-Gt. Falls, Mt. Feb. 16 Bob Greene-Mont. F&G-Warm Springs, Mt. (cannon net) Mar. 6 Mel Morris-Univ. of Mont., Missoula (IBP project) Mar. 19 Nick Mariana, BSFW-Portland, Ore. (slide show) Jack Waddell, BSFW-Portland, Ore. (public use) Mar. 30 Apr. 8 Ash Brann-BSFW-Helena (courtesy visit) May 19 Duane Robertson, County Sanitarian-Polson (safety meeting) May 22 Bill Browning, Helena (writer & photographer) June 1 Gene Patten, BSFW-Upper Miss. MWR-Cassville, Wisc. (courtesy) Harold Preston, BSFW-Portland, Ore. (Admin. Insp) June 1 June 9 Al Sloan-NYC- Dixon (NYC business) Noren Vora-NYC-Dixon (NYC business) June 9 June 9 Jay Rooney-Trout Unlimited-Missoula (Jocko river) Dick Martin-BSFW-Ronan (courtesy visit) June 15 June 23 Keith Seaburg-Mont. F&G-Missoula (film) Eldon McLaury-BSFW-Malheur NWR-Ore. (courtesy visit) June 27 Bob Schumaker-Mont. F&G-Kalispell-(Jocko River) July 14 Burt Webster-BSFW-Noxubee NWR, Miss. (courtesy) July 15 July 24 Tom Smith-BSFW-Portland, Ore. (courtesy) Lyson Planz-BSFW-Minidoka NWR, Rupert, Ida. (excess property) Aug. 18 Aug. 20 Joe Zoolk-SCS-Missoula (range tour) Aug. 20 Bob Ross-SCS-Bozeman (range tour) Aug. 20 Larry Osbornson-SCS-Missoula (range tour)

Abe Linford-SCS-Bozeman (range tour)

ANNUAL KAONTIKKY RECREATIONAL USE REPORT

Refuge name

NBR State

Mont.

Congressional Refuge Report Yr. | Mo. State Code 26 District Code 01 Code 13 4 Period 70 =-(5 - 7)(3-4)(8-11)(1-2)(Card Columns). . (Card Columns). (19-25)· · · (12-13) (14-18) (19-25)(12-13)(14-18)VISITS FOR THE MONTH VISITS FOR THE MONTH Code Code ACTIVITY ACTIVITY Total Number Total Hours Total Number Total Hours Hunting: 01 On-Site Programs 22 Big Game 277 547 23 Upland Game 02 *Miscellaneous Wildlife 8 70 Waterfow1 0.3 24 Other Migratory 04 Swimming 25 Other 05 Boating 26 Water Skiing Bow 06 Fishing: Camping 27 07 Salt Water 28 Group Camping Warm Water 80 29 Picnicking Cold Water 09 1,325 4,100 30 Horseback Riding Environmental Education 10 1,700 286 1,460 1,715 Bicycling 31 Wildlife Photography 11 5.950 10,725 Winter Sports 32 Wildlife Observation 12 21.040 17.930 Fruit, Nut and Vegetable 33 Conducted Programs 13 500 Collecting 100 *Miscellaneous Non-Wildlife 34 Field Trials 14 Peak Load Day 35 Wildlife Trails 15 1,540 36 Actual Visits Wildlife Tours/Routes 16 91,732 52,830 93,220 Visitor Contact Stations 17 Fee Area Use 37 18 Camping (wildlife related) (14-18)38 19 Number of Fee Areas Picnicking (wildlife related) 24.545 24.545 Fee Collections 39 \$ 20 ife Interpretive Center Collection Costs 40 \$ Off-Site Programs 21 12,190 115

Clayton Ogle-SCS-Bozeman(range tour) Aug. Sept. 8 Sam Sage-BSFW-CMR-NWR-Ft. Peck, Mt. (excess prop.) Gene Handel-SCS-Havre, Mont-(courtesy visit) Sept. 8 Jeff Smith-BSFW-Upper Miss. NWR-McGregor, Iowa(courtesy) Sept. 9 Sept. 9 Ken Grant-Admin. of SCS-Wash. D.C. (range tour) Sept. 17 Bruce Stolberg-ASFW-Wash. D.C. (courtesy) Sept. 19 Hal O'Connor-BSFW-Merrit Island NWR-Fla. (courtesy) Oct. 6 Bill Jones-Colorado F&G -Denver, Colo. (roundup) Gary Meyers, Colo. F&G-Denver, Colo. (Roundup) Oct. 6 Oct. 6 Perry Olsen ." 11 Oct. 6 Howard Lipke, BSFW-Ravalli-NWR, Stevensville(roundup) n 11 11 Oct. Nov. 3 Guy Connolly-Hopeland Fld. Sta. Univ. Calif. Davis(research) n. Nov. 11 11 11 11 Dr. John Oh Eugene Cofer-BSFW-Gt. Falls, Mt. (enforcement) Nov. 16 Nov. 16 Carl Gruener " Portland, Ore. (enforcement) Nov. 23 Richard Wonacott-BSFW-Lewistown, Mt. (courtesy visit) Dec. 2 Jack Barryman-BSFW-Wash. D.C. (courtesy visit) Dec. 2 Homer Ford-BSFW-Portland, Ore. (courtesy visit) Dec. 2 Norton Minor-BSFW-Billings, Mont (courtesy visit) Dec. 2 Frank Wetherbee-BSFW-Charlo, Mt. (courtesy visit) J.Juan Spillett-Utah State Coop. Wildlife Unit, Logan, Utah Dec. 4 (collect sheep) Tom Follis-DVM Dec. 4 (collect sheep)

C. Refuge Participation

Kaschke Conduct workshop on Environmental Education with local Jan. science teachers. Jan. Presented program to Charlo PTA. Feb. 9-13 Presented paper on Bison Range grazing program to American Society of Range Mgt. in Denver. Attended Forest Service Conservation Education Training Feb. 24-27 session in Elsie, Oregon. Attended Range Natural Area Committee Meeting in Missoula. Mar. Apr. 22 Presented "Earth Day" program-Charlo High School. 24 Presented Range Society paper to Federal Businessmen's Apr. luncheon meeting in Missoula. 2 Conducted teacher workshop on Enviornmental education. May 4-6 Attended Refuge Mgrs' workshop in Gt. Falls. May Fifteen minute television appearance KGVO Missoula. May 12 19-20 May Attended Rural Area Development meeting & range tour. Missoula. 23 May Spoke to Saddle Club group at Ravalli Camp. Attended technical Action Panel meeting & tour. May 26

June 5-7 Attended annual meeting of Mont. Wildlife Federation in Lewistown.

July 17 Spoke to and gave tour to Mont. Chapter of Soil Cons. soc. fo America.

July 28-31 Attended C.M. Russell NWR to help with Nichols Coulee project.

Aug. 11 Spoke to 25 Foreign diplomats & their families. Aug. 12 Spoke to visiting foresters from North Carolina.

Aug. 28-29 Tour & talks for Sixth International Short Course.

Sept. 9 Tour for Ken Grant, Administrator of S.C.S.

Sept. 13 Spoke to district meeting of Mont. Wildlife Federation on Flathead Lake WPA.

Sept. 10 Master of Ceremonies for PTA teacher orientation meeting.

Sept. 15 Spoke to Polson Outdoors Club.

Nov. 3 Spoke to Polson Rotary Club.

Dec. 2 Tour for Jack Barryman, Central office.

Dec. 9 Spoke on refuge plans to local committee on Rural Development.

Served as President of Charlo Lions Club and attended all local and zone activities. Served as chairman of program committee for Charlo PTA. Attended numerous meetings of local sportsmen clubs and the Federal Businessmen's Assn. Conducted numerous tours for school groups, writers and photographers.

Barber

- Jan. 7 W/Kaschke conduct workshop on environmental Education for local Science Teachers.
- Feb. 16 Attended public hearing on proposed pesticide legislation in Charlo.
- March 14 Judge for Western Montana district science fair in Hamilton.
- March 16 Talk & film "So Little Time " for wildlife week at Charlo School.
- March 19 Talk & Film for Wildlife week at St. Ignatius Grade School.
- March 19 Talk & Film for wildlife week at St. Ignatius High School.
- March 19 Talk and film for Wildlife Week at Arlee School.
 March 20 Talk and film for Wildlife Week at Dixon School.
- March 25 Judge for St. Ignatius science fair.
- May 4-6 Attended Refuge Mgrs. workshop, Gt Falls.
- May 24 Rode in annual Saddle Club tour of Range.
- June 22 Helped with Goose banding at Ravalli NWR at Stevensville.
- July 17 W/Kaschke-talk and film for Mont. Chapter of Soil Conservation Society of America.
- Aug. 11 W/Kaschke-talk & film for 25 foreign diplomats and their families.

Aug. 12 W/Kaschke-talk and film for visiting foresters from North Carolina.

Aug. 28-29 Tour Ninepipe & Bison Range with participants of Sixth International Short Course.

Served as Second Vice President and Program Chairman of Charlo Lions Club and attended all regular meetings and special activities. Attended occassional meetings of various area sportsmen's clubs. Conducted numerous on-refuge tours for school groups, photographers and writers.

May

Active member of Masonic Lodge and Charlo PTA. Conducted hunter Safety course for local youngsters. Conducted several school tours and interviews for writers and photographers.

Hogge

Boy Scouts of America:

- 1. Leadership training chairman for Lake district.
- 2. Member Western Mont. Council leadership training committee.
- 3. Member training staff for Tri-District Junior and Senior leadership training program.
- 4. Member of staff for Tri-District spring camporee.
- 5. Scoutmaster, Charlo Troop #56.
- 6. Conducted three two-day adult training sessions.

Aug. 28-29 Helped with tour and barbecue for Sixth Int*1. Short Course.

Dec. Slide talk for LDS Church group.

Coached Junior basketball team. Conducted several school tours. Chairman Dist. #28 School Board.

Kraft

May 19 W/Kaschke-fifteen minute television program on KGVO-Missoula.

Aug. 28 Helped with Sixth Int'l. Short Course.

Conducted several school tours, interviews with writers and photographers. Active member in Charlo PTA. Coached Babe Ruth baseball team.

Krantz

Apr. 14 Slide talk to Moiese 4-H group.

Member of Moiese, Pomona, and State Grange.

Member Lake County Development Council. Conducted several school tours and helped with Sixth Int'l.

Short Course.

Middlemist

Served as Chairman of School Board for District #9, this is Bob's sixth year on the Board.

Active in Sanders County 4-H affairs.

Conducted several school tours & helped with 6th Int'l.

Short Course.

Lampshire

Conducted several School tours.
Helped with 6th Int'l. Short Course.

One of the highlights of the year was a visit by the "Sixth International Short Course on Administration of National Parks and Equivalent Reserves." The 37 participants, representing 23 foreign countries, toured Ninepipe and the Bison Range. An evening barbecue, attended by refuge personnel and their wives gave all the opportunity to talk with these very interesting people. Recently, word was received they enjoyed the experience so much they plan to return in 1971.

Refuge personnel made periodic news releases to local papers, radio and TV Stations.

D. Hunting

There is no public hunting on the Bison Range. General water-fowl and upland game bird hunting condition's are discussed in the Ninepipe and Pablo report.

E. Fishing

Fishing was quite good, at times, along the Jocko River and the public access area received heavy use throughout the summer. Occassional periods of High and cloudy water made it tough on the fly-fishermen, but bait dunkers made out like "bandits". Several trout in the three to five pound class were reported. A few members of the refuge crew kept the water frothy during evenings and week-ends on a regular basis.

F. Violations

The following law enforcement casses were made by refuge personnel this year: all cases were filed in State Court in Polson, Montana.

Date	Defendant		Officer	Result
5/19/70	Halverson, Gary J.	Fish closed waters	May	\$3.50
5/19/70	McDonald, Darrell C		May	3.50
5/31/70	Margrave, Thomas E.	n n	May	25.00
10/10/70	Osborne, Jeffrey A.	Take Protected Specie	sBarber	Juvenile
10/10/70	Cooper, Robert E.	Hunt on refuge	Barber	10.00
10/10/70	McMaster, Jon T.	Unlawful transport of waterfowl	Barber	25.00
10/10/70	Rude, Patrick L.	Unlawful transport of waterfowl	Barber	Pending
10/10/70	Martin, Peter N.	Unlawful transport	Barber	25.00
		of waterfowl		
10/11/70	Johnson, Bradley E.	No State Bird Liscens	eBarber	30.00
10/11/70	Hill, Linda R.	11 11 11 11	Barber	30.00
10/11/70	Dolan, Timothy F.	Unplugged shotgun	Barber	30.00
10/11/70	Hagested, Ronald R.			30.00
10/11/70	Hendrickson, James		May	Pending
10/13/70	Barnes, Rob. D.	Late shooting(31min.)	May	Pending
10/13/70	Rude, Patrick L.	11 11 11	May	Pending
10/15/70	Gregory, John M	" (28min.)	May	30.00
10/15/70	Fairbank, Charles M	11 11 11	May	30.00
10/17/70	Mercer, Gem T.	No State Bird License	Barber	15 days
10/17/70	Palmer, James W.	No hunting License	Barber	Pending
10/17/70	Hill, David B.	No State Bird License	Barber	30,00
10/17/70	Durand, Lonie D.	n n n n	Barber	30.00
10/28/70	Dickson, Karen A.	Fish closed waters	Barber	25.00
10/28/70	Nielsen, Gary E.	11 11 11	Barber	25.00
10/28/70	Dickson, George	11 11 11	Kaschke	25.00
11/21/70	Steuerwald, Winston	E		
		No State Bird License	Barber	30.00
11/21/70	Helding, Carl	11 11 11 11	May	Pending
11/21/70	Anderson, Clem P.	Drive geese from	May	Pending
		refuge		9
12/10/70	Hensel, James U	No Duck Stamp	Kaschke	Pending
12/10/70	Carr, James S.	n n n	Barber	
12/11/70	Hern, David B.	No hunting License		30.00
12/11/70	Hern, Leonard R.	No State Bird License		30.00
12/12/70	Lienemann, Rob. W.	Fish closed Waters	Barber	Pending
12/29/70	Livingston, Calvin		Barber	Pending
12/29/70	Livingston, Ray C.	11 11 11	Barber	Pending
1~/~//	ZIVINGO OOII, IMAJO		20200	

This was a particularly bad year for wildlife violations particularly Violators seemed particularly uncooperative with the courts, as shown by the number of cases still pending. Most of the

violators in these cases failed to answer the courts request to appear and warrants have been issued.

G. SAFETY

Scheduled SAFETY meetings and the main topics of discussion were as follows:

- Jan. Kaschke, Chairman-Montana Highway Patrolmen Rierson and Brander presented film and spoke on defensive driving.
- Feb. Kraft, Chairman—SAFE horsemanship was discussed. Seat belts and their importance was secondary topic.
- Mar. May, Chairman-Films on "Lifting, Man's Age Old Problem" and "Hydroplanning" were viewed and discussed.
- Apr. Barber, Chairman-Insect and snake bite allergy and first aid were discussed.
- May Hogge, Chairman-County Sanitarian Robertson spoke on Air Pollution and County Laws.
- June Krantz, Chairman-General SAFETY on Everything from Equipment to Clothing for the benefit of NYC Group and temporary summer employees.
- July Hruska, Chairman-Lightning, treatment of lightning victims and range fire proceedures were discussed. May gave fire fighting equipment demonstration for temporary employees.
- Aug. May, Chairman-Film "Man Against Fire" was viewed and fire fighting was discussed.
- Sept. Kaschke, Chairman-Films on hunting SAFETY were viewed and discussed.
- Oct. Lampshire, Chairman-Defensive driving articles from Family SAFETY and Heating systems were discussed.
- Nov. Kraft, Chairman-General SAFETY, and carbon monoxide poisoning were discussed.
- Dec. Middlemist, Chairman-Nuclear fallout, shelters and emergency preparations were discussed.

No lost-time accidents occured during the year, however maintenanceman Lampshire punctured his thumb on a wire while building a small animal cage and had to have a tetanus shot. The station has accumulated 1230 days without a lost-time accident.

VII OTHER ITEMS

A. Items of Interest

1. Training

Feb. 24-27 Kaschke attended the Forest Service Conservation Education training conference in Elsie, Oregon.

Mar. 31 May and Hogge attended a maintenance Seminar on traffic counter equipment conducted by Streeter-Amet Corporation in Missoula.

2. Flathead W.P.A.

The Wetlands acquisition program in Flathead County, Montana got underway this year with the purchase of 1696 acres along the north shore of Flathead Lake. The area has long been under consideration as a refuge and has tremendous potential for development. The area covers approximately six miles of Marshy shore line and represents one of the largest undeveloped sections of the famous lake.

Options have been taken on three adjoining tracts which could add approximately 650 acres to the W.P.A. and Realty people have been working on several other small areas in the county.

The new Flathead Lake W.P.W. will be administered from the Nation Bison Range.

3. Miscellaneous

Clerk Sharon Scammon transferred to the Division of Wildlife Services in Denver, Colorado. Sharon was a highly efficient clerk and she is sorely missed. The entire crew gathered for an evening picnic to wish her well in her new position. A very appropriate hand-wrought device, dubbed a "gopher-choker", complete with elaborate instructions for use, was presented to her along with a more conventional memento of the Bison Range.

Mrs. Susan McCollum, of St. Ignatius, was selected to fill the clerk vacancy. Susan has progressed rapidly in the many facets of the position and is a valuable addition to the staff.

Manager Kaschke and Joe Zacek, S.C.S. Range Conservation—ist, presented a paper on the Bison Deferred—rotation grazing program to the twenty third Annual Meeting of the American Society of Range Management in Denver, Colorado. Kaschke reported the paper was very well accepted by the large crowd.

The Kaschke family was blessed with a new addition this fall. Petrina Renee weighed in at 6# 14 oz. the evening of Oct. 23. Needless to say, Marv's chest has been several inches too large for his new uniform shirts ever since!

Maintenanceman Ed Krantz and Assistant Manager Barber received 10 year length-of-service pins in November.

Manager Kaschke and Maintenanceman Krantz each received five year SAFETY awards in December.

B. Credits

Kaschke- Part I- General

Barber- Part II-Wildlife, Part V-Field Investigation or Applied Research, Part VI-Public Relations, Part VII-Other Items and all NR-Forms.

May- Part III-Refuge Development and Maintenance.

McCollum-Part IV-Resource Management and all typing.

All personnel contributed to collection of field data essential to the preparation of this report.

C. Photographs

Photos appended were taken by various refuge personnel with the refuge 4X5 Speed Graphic or 35mm Exacta Cameras.

Submitted by:

(Signature) R. Kashke

Refuge Manager (Title)

Approved, Regional Office:

Date:

(Signature)

(Title)

Refuge National Bison Range Months of Jan to Apr , 19

(1) Species	(2) Density		(3) Young Produced	(4) Sex Ratio	R	(5) emovals		(6) Total	(7) Remarks
Common Name	Cover types, total acreage of habitat	Acres per Bird	Number broods obs'v'd. Estimated Total	Percentage	Hunting	For Restocking	Research	Estimated number using Refuge	Pertinent information no specifically requested. List introductions here.
Richardson Blue Grouse	2,000 as conifer							50	
Ruffed Grouse Columbiah Sharptai	300 a. streamb	ttom						5	
Grouse Starpes	12,000 a. mined							10	2 birds observed several times this spring
Ring-necked Phesant	2,000 a. grass & streambottom							100	
Chukar Partridge	6,000 a. mixed							30	
Gray Partiridge	12,000 a. Mixed							700	

UPLAND GAME BYRDS

Refuge mational mison mange on this of my to sept. , 19 70

(1) Species	(2) Density		You Produ	ng	(4) Sex Ratio	R	(5) emova	ls	(6) Total	(7) Remarks
Common Name	Cover types, total acreage of habitat		Number broods obs'v'd.	Estimated Total	Percentage	Hunting	For Restocking	For Research	Estimated number using Refuge	Pertinent information not specifically requested. List introductions here.
Richardson Blue Grouse	2,000 a. cenife	r		10					80	
Ruffed Groupe	300 a. Stream bottom								5	
Columbia Shurp- teiled Groupe	12,000 a. mixed								12(7)	Two observations of 2 birds this period
Ring-necked Pheasant	2,000 a. grass & stream bettom		6	75					175	
Chucker Part- ridge	6,000 a. mixed		2	15					40	
Gray Partridge	12,000 a. mixed		17	800					1600	
				1	THE RESERVE	San Paris	12	5 1900	CAR CHEST	

Refuge National Bison Range Montus of September to December , 19 70

(1) Species	(2) Density	(3) Young Produced		(4) Sex Ratio	R	(5) emova	ls	(6) Total	(7) Remarks
Common Name	Cover types, total acreage of habitat	Number broods obs'v'd.	Estimated Total	Percentage	Hunting	For Restocking	For Research	Estimated number using Refuge	Pertinent information not specifically requested. List introductions here.
Richardson Blue Grouse Ruffed Grouse	2,000 a. conifer 300 a. stream-				0	0	0	70	
	bottom				0	0	0	5	
Columbian Sharp- tailed Grouse	12,000 a. mixed				0	0	0	10(?)	No observations this period
Ring-necked Pheasant	2,000 a. grass and stream bottom				0	0	0	350	Heavy influx from outside refuge due to hunting pressure
Chukar Partridge	6,000 a. mixed				0	0	0	30	reruge due to hanting pressure
Gray Partridge	12,000 a. mixed				0	0	0.	1,200	
								1,200	

BIG GAM

Refuge National Bison Range

Calendar Year 1970

(1) Species	(2) Density	(3) Young Froduced		(h)	ls			(5) 8888	In	(6) troductions	(7) Estimated Total Refuge Population		(8) Sex Ratio
Common Name	Cover types, total Acreage of Habitat	Number	For Re- stocking	Sold	For	Predation	Disease	Winter	Number	Source	At period of Greatest use	As of Dec.	M:F
Bison	15,600 a. grassland	69		80				8*			402	314	84:100
Klk	5,000 a. conifer & grass	.7			2*			1			60	57	90:100
Mule Deer	10,000 a. conif, brush &	81		90				7	4	Mont. F&G	321	229	86:100
White-tailed deer	4,000 a. conif, brush, & grass	67		52			1	2	4	Mont. F&G	221	168	104:100
Bighorn Sheep	8,000 a. conifer & grass	10	1		2*		1				52	48	105:100
Antelope	6,000 a. grassland	62			2*	42		2			174	130	104:100
Mt. goat	2,000 a. conifer	4			2*						15	13	unknown
Texas Longhorn	5 a. pasture										2	2	-
steer									7.				

Remarks: * Buffalo: Losses from various natural causes and accidents - 2 bulls disposed of due to injuries - meat salvaged and donated to schools.

^{*}Elk, Sheep, Antelope and Goats: 2 each collected for research, meat and skeletons sold or donated to schools.

* Antelope: Heavy fawn losses due to undetermined cause.

Refuge National Bison Ren

Year ending April 30. 1970

(1) Species	(2) Density				(3)			D	isposit	(4) tion of	Fure			(5)
								Shar	e Trapp	ing	Refuge	ted		Total Populs
Common Name	Cover Types & Total	Acres Per Animal	Hun ting	Fur	Predator Control	For Re- stocking	For Re-	Permit Number	Trappers	Refuge	Total Ref Furs Ship	Furs Dona	Furs	tion
	2,500 a. streambotto 10,000 a. grassland 100 a. streambotto 50 a. wetland 2,000 a. mixed 4,000 a. 100 a. streambotto irrel 5,000 a. Grassla	nd												10 5 45 40 5 10 30 120 40 10 300

REMARKS:

NONAGRICULTURAL COLLECTIONS, CEIPTS, AND PLANTINGS

Refuge National Bison Range

Year 19 70

	(See			s and Recks, tre					Plant Marsh - Aqua	ings tic - Upland)		
Species	Amount (Lbs., bus., etc.)	(2) C or R	Date	Method or		(3) Total Amount	Location of Area Planted	Rate of Seeding or	Amount Planted (Acres or Yards of	Amount and Nature of		Survival	Cause of Loss
Timothy	80	R	9/22	Surplus	0	200#							
Alta fescu Western W wheat	•					7# 18#	Northside range	4#/A	4 acres	16#	Aug.	Unknown	
Kentucky bluegrass						15#							
Clover	60	R	9/22		0	60#							

(1)	Report	agronomic	farm	crops	on Form	NR-8
12)	C = Co	1leations	and R	= Reco	eint.	

(3) Use "S" to denote surplus

moto7	0070070	nlantad.
Local	acreage	planted:

Marsh and aquatic
Hedgerows, cover patches
Food strips, food patches
Forest plantings

wheatgrass mix.	Remarks:	Small	pepore	hill	tops	mulched	and	seeded	with	fescue	/
	wheatgr	ass mix									
									4		
			Const. Di								

INTERIOR -- PORTLAND, OREGON

3-1758 Form NR-8 (Rev. Jan. 1956)

Fish and Wildlife Service

By anch of Wildlife Refuges

CULTIVATED CROPS - HAYING - GRAZING

Refuge Nationa	l Bison Rang	ge		_ County	Lake			State	1970	•
Cultivated Crops Grown	Share	ittee's Harvested Bu./Tons	Har	rnment's S vested Bu./Tons	Unha	Return rvested Bu./Tons	Tota Acrea Plant	ge fowl Bro	nd Water- owsing Crops	Total
None										
								Fallow A	g. Land	None
No. of Permittees:	Agricultur	al Operation	ons Non	е	Haying (perations	None	Grazing	Operations Refu	ge personnel
Hay - Improved (Specify Kind)	Tons Harvested	Acres	Cash		GRAZING		ber mals	AUM'S	Cash Revenue	ACREAGE
				1.	Cattle					
				2.	Other Horses	3		24	\$48	
				1.	Total Re	efuge Acre	age Und	er Cultivatio	n	40 *
Hay - Wild				2.	Acreage	Cultivate	d as Se	rvice Operati	on	40

^{*} Periodic cultivation for grass hay and irrigated pasture.

REFUGE GRAIN REPORT

(1)	(2) On Hand	(3) RECEIVED	(4)		GRAIN D	5) SPOSED OF		(6) On Hand	Propos	(7) ED OR SUITABL	E Use*
VARIETY*	On Hand Beginning of Period	During Period	TOTAL	Transferred	Seeded	Fed	Total	On Hand End of Period	Seed	Feed	Surplus
Oats	165		165			65	65	100		100	
Barley	817	528	1,345			495	495	850		850	
			*								
									•		
						1					

(8)	Indicate shipping or	collection points		 	 	 ******
(9)	Grain is stored at	Headquarters	granary		 	

(10) Remarks Barley received from Kootenai National Wildlife Betuge.

^{*}See instructions on back.

ANNUAL REPORT OF PESTICIDE APPLICAT. N

National Bison Range

Proposal Number Reporting Year

INSTRUCTIONS: Wildlife Refuges Manual, secs. 3252d, 3394b and 3395.								1970	
Date(s) of Application	List of Target Pest(s)	Location of Area Treated	Total Acres Treated	Chemic al(s) Used	Total Amount of Chemical Applied	Application Rate	Carrier and Rate	Method of Application	
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	
6/18-7/20	Canada Thistle	Roadside & Picnic	34	2,4-D Amine	18 Gallons	2# Acid Equiv	. Water 1:100	Ground	
7/6-7/11	St. John'swort	Upper North Range	1,569	2,4-D Amine	784.5 Gallons	2# Acid Equiv	Water 20:100	Arial	

^{10.} Summary of results (continue on reverse side, if necessary)

Canada Thistle - excellent apparent kill, extent of long range control is questionable.

St. John'swort - apparent kill 90%.

INTERIOR - PORTLAND, OREGON

REPORT ON THE PRELIMINARY
RESULTS OF A STUDY OF THE
SOCIAL BEHAVIOR OF THE
PRONGHORN ANTELOPE
1970

by David W. Kitchen

Department of Wildlife and Fisheries School of Natural Resources University of Michigan, Ann Arbor November 18, 1970

Introduction

This interim report covers the period from May 7 to October 5, 1969 and from May 1 to November 1, 1970 during which work was conducted on the National Bison Range, Montana. The purpose of the study is to describe and analyze the social behavior of the pronghorn antelope, and its relationship to other animals on the range. The field work was supported by grants from the Wildlife Management Institute, Washington, D.C., and the Welder Wildlife Foundation, Sinton, Texas.

Intraspecific Behavior

Eight hundred and seventy-six hours of actual behavior observations have been accumulated. Forty-four behavioral acts have been described, and the variations and temporal patterns have been followed through over 1,200 interaction sequences. A statistical analysis to determine the most typical sequences of acts for each type of interaction, i.e. agonistic, sexual, etc., has not yet been carried out. This type of analysis will be done at the completion of the field work. Also further comparisons of the pronghorn's displays with those of other ungulate species will wait until the field work is complete.

A further analysis of the pronghorn's white markings has shown that they vary somewhat with the molt from the summer to winter coat and vice versa. This does not hinder in any way, however, their usefulness as clues for identifying individual animals. The changes are usually minor and the observer is able to note them as they take place. This has made it possible to follow the success of the master bucks during both ruts observed so far and to clarify the movements of the does during the rut. It has also helped establish the females role within the herd.

As noted in the 1969 progress report, the pronghorn has been described as both a territorial (Cole, 1956; Bromley, 1969) and a harem (Buechner, 1947; Gregg, 1955) breeder. It appears, at the Bison Range at least, that neither of these



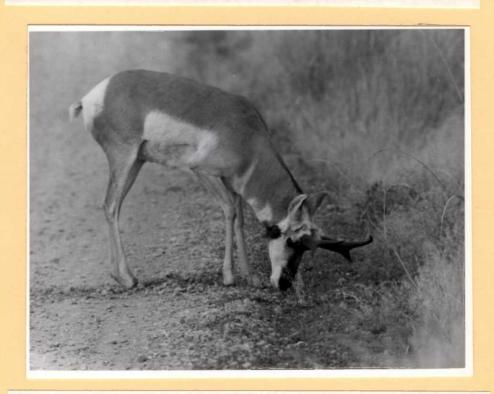
A typical bachelor buck interaction, between animals closely ranked in the hierarchy, usually starts with a hard stare, which leads to staring with horns touching (as in figure). If the interaction is not settled at this point sparing begins and continues until one buck is dominated.



Subordinate bucks are treated like females by the dominate male in an interaction. Mounting and erection of the penis are common and the subordinate male may even perform lordosis.



In this picture a full mount has been allowed and the dominate male has attempted a pelvic thrust.



One of the bucks most important behaviors is marking his area with feces and urine (also covering female excreta with his). Here a buck sniffs and paws a spot where a female has urinated.



He then marks the spot with urine, and may perform a lip curl (flehman) during this phase of the sequence.



With an extreme change of posture he then defecates on the spot. Only bucks make this posture change and so from a distances he announces there is a buck in the area. An interesting point was that after the master bucks left their territories in early November they did not always go thru this sniff-paw-urinate-deficate (SPUD) sequence. Which adds support to the contention that this display may be used to defend a territory.

terms fully describes the pronghorn's breeding system. Elements of both systems seem to be integrated into the pronghorn's behavior in such a manner that it makes the exclusive use of either category tenuous.

Major differences were noted between the 1969 and 1970 breeding seasons, but, even with these differences, a basic pattern occurred in both years. Master bucks were on "territories" when field work started in both years and were defending them against all other males. All spring and summer bachelor males were easily routed with only a short chase or laugh call (see Gregg, 1955 for description). "Territories" wre defended with or without does in the area.

By the first week in September master bucks were starting to court and herd does, but the females moved away readily and were often pursued. At this time the bachelor herds broke up into small bands (2-9 animals) that wandered over the entire range. As the rut progressed these groups became more aggressive in their attempts to approach does and would run into the female groups attempting to cut out a doe. As a result the "territorial" defense became more demanding for a master buck, as these males no longer gave way readily to a vocalization or threat of chase and had to be driven from the area.

As females started entering estrus (Sept. 12, 1969 and Sept. 19, 1970, and allowed full courtship and copulation, master bucks ceased to abandon their harems readily to defend their "territory". Whether or not a doe will be abandoned depends, to a large extent, on the circumstances of the courtship. An estrus doe being courted by a master buck, with 3 or more bachelor males present, was always defended and not the "territory". If only 1 or 2 males were in the area, or visible, estrus does, in 1969, were abandoned 61% (11 of 18 observations) of the time to defend the "territory" and defended 39% (7 of 18 cases) of the time.

No estrus does were deserted under any conditions in 1970, but it must be noted that there were only 5 cases where only 1 or 2 bachelor males were present

during courtship. This was caused by an increase in bachelor bucks from 1969 to 1970, which was due to the 1969 fawn crop that was 67% males (28 of 42 fawns). As yearlings these bucks increased the pressure on master bucks tremendously, and thus few males with harems had less than 3-5 bachelors around.

Perhaps the most unusual aspect of the pronghorn's breeding system is the territorial defense in the spring and summer which changes (in most cases) to a "harem" defense, due to bachelor pressure, during the rut. The display of 'territoriality" during the spring and summer may be more easily explained than its breakdown during the rut.

By defending a "territory" all summer, when bachelors are easily chased away, a master buck assures himself control of a harem during the rut. The earliest does to ovulate do so when many bachelors (especially yearlings) are just starting to take part in the rut and to aggressively approach does on "territories". Thus, master bucks may effect a copulation or even two while some males are only beginning to take part in breeding activities and still have a tendency to flee precipitously at the approach of the master buck. This is born out to a degree by the fact that early courtships have few (usually 1 or 2) bachelors in attendance, while later ones usually have many (3-6 in general, 18 in one case) males harassing the courting buck. Another interesting observation is that 90%, in 1969, of the encounters where estrus does were deserted, to defend the "territory", occurred during these early courtships.

The ideas which may explain the gradual shift from a "territorial" to a "harem" system as the breeding season progresses are highly speculative at this time. Therefore, the discussion of this change will be deferred until a more thorough data analysis has been completed.

Two new "territorial" males were established in 1970. They were numbers 1 and 3 in the bachelor hierarchy in 1969, number 2 disappeared during the winter.

The process of staking out a "territory" is a gradual one and seems to require at least an entire summer to be accomplished. Both new "territories" were between old ones, were part of the bachelor herd's home range, and were in areas little used by neighboring master bucks, but occasionally frequented by doe-fawn groups during the summer.

On 'ay 1, 1970 both bucks were associated with a bachelor group, but as summer progressed they became intolerant of the group and would remain alone in their own areas when the bachelor group moved away. About mid-July they started to react aggressively to the bachelors and would stand their ground to display threateningly at neighboring master bucks (though they usually gave way to them in the end). Even though they reacted aggressively to bachelor herds they would, from time to time, join them, move about with them, and allow them on their respective "territories". In mid-August they still moved in and out of bachelor groups, but now began to give full (head-down, earsback broadside) threat displays to master bucks and the encounters ended in a draw, thus establishing a mutual boundary with their neighbors.

As the breeding season got under way these two (NF and EB) were firmly settled on their "territories" and defeated all encroaching males (in one case NF losthis place for six hours to his neighbor NS, but later defeated NS and regained his area). EB bred 3 does (he also bred 2 in 1969 as the top bachelor male), but even though NF was associated with 2 estrus does during the peak of the rut no copulations were directly observed.

Master bucks accounted for 96% (24 of 25) of the known copulations, while 4% (1 of 25) were by bachelor bucks. Bachelor bucks were less successful this year (even though more abundant) than last (21% of 17 observed breedings), because the harems were smaller. They applied so much pressure that a master buck with more than 2 or 3 does was rare (some had more for short periods, and one exceptional male had 6-8 most of the rut). Those bucks with harems were usually

days. Their success was due, in no small part, to the bachelors themselves who constantly drove the females (not by design) back to doe groups by their aggressive courting attempts. This kept the does in a tight group which aided the master buck's herding efforts.

Pronghorn females move within a well described home range most of the year. Only when the large winter herds are formed do all the does in an area come together. At this time the female hierarchy is most clearly expressed. There are a large number of loops in it, and it does not appear to be a simple linear hierarchy. It works to assure that dominant does feed and lay down where they choose. These dominant animals may be followed more frequently by other does, but no clear numerical data have been compiled as yet.

Interspecific Behavior

The observations regarding interspecific behavior and habitat selection for 1970 were similar to those of 1969. Some new observations of bison-pronghorn associations were made. It was noted that buck groups are seen in and about bison herds more frequently than doe-fawn groups. This is not too surprising as there is a gradation, based on sex and age, in the degree of nervousness a pronghorn displays around a bison group. Fawns are most apt to react with alarm at the approach of a bison, does are next (both yearlings and adults), then come yearling bucks, older bachelors, and then master bucks. Also lone animals (except a master buck) are more likely to react with alarm than a group at the approach of a bison herd.

Proposed Further Research

In order to check the validity of the observations made at the Bison Range, the study will be moved to the Townsend-Toston Flats area in central Montana.

The present antelope herd at the Bison RAnge was transplanted from this area.

In the new area, observations of free-roaming antelope will be continued, and documentation of acts will proceed as planned through photography with a 35 mm. camera. Tape recordings will be attempted and later analyzed with sonograms, especially in the case of the bucks' laugh call. A weekly spot light census will be continued through another year, and all animals observed will be recorded as to species and plotted according to location and habitat.

A few fawns will be ear-tagged in 1971-these will be used to determine, if possible, the causes of mortality in the Bison Range herd. If arrangements can be made, radios will be placed on some fawns so that their movements and ultimate (if they do not survive) fate may be clearly documented.

Forage studies similar to those at the Bison Range will be carried out in the Townsend-Toston areas so that comparisons may be made between the two areas.

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NINEPIPE AND PABLO NATIONAL WILDLIFE REFUCES

Narrative Report

January 1, 1970 to December 31, 1979

REFUGE PERSONNEL

These refuges are managed from the National Bison Range Office.

UNITED STATES DEPARTMENT OF THE INTERIOR BUREAU OF SPORT FISHERIES AND WILDLIFE FISH AND WILDLIFE SERVICE Moiese, Montana

\underline{C} \underline{O} \underline{N} \underline{T} \underline{E} \underline{N} \underline{T} \underline{S}

		PAGE
I.	General	1
	A. Weather Conditions	1
	B. Habitat Conditions	1
	1. Water	1
	2. Food and Cover	1 & 2
	Was 19.4.6	
II.	Wildlife	2
	A. Migratory Birds	2
	1. Waterfowl	2
	a. Ninepipe	2
	b. Pablo	3
	2. Marsh and Water Birds	3 & 4
	B. Upland Game Birds	4
	C. Big Game Animals	4
	D. Fur Animals, Predators, Rodents and Other	
	Mammals	4
	E. Hawks, Eagles, Owls, Ravens & Magpies	4
	F. Other Birds	4
	G. Fish	5
	H. Reptiles	5
	I. Disease	5
III.	Refuge Development and Maintenance	5
	A. Physical Development	5555556
	B. Plantings	5
	C. Collections and Receipts	5
	D. Control of Vegetation	
	1. Biological Control	6
	2. Chemical Control	6
	E. Planned Burning	6
-	F. Fires	6
IV.	Resource Management	6
	A. Grazing	6
	1. Ninepipe	6
	2. Pablo	6
	B. Haying	6
1	C. Fur Harvest	6
V.	Field Investigations or Applied Research	7
	A. Progress Reports	7
	1. Waterfowl Banding	7
VI.	Public Relations	7
	A. Recreational Uses	7
	B. Refuge Visitors	7 7 7 7 7 7 7 8 8
	C. Refuge Participation	7
	D. Hunting	7
	E. Violations	8
	F. SAFETY	8
MII.	Other Items	8
	A. Items of Interest	8
	B. Report Credits.	8

NINEPIPE AND PABLO NATIONAL WILDLIFE REFUGES

Narrative Report

January 1, 1970 to December 31, 1970

I. GENERAL

A. Weather Conditions

The winter months were generally characterized by above normal temperatures and precipitation. March and April were colder than normal with continued above average precipitation. The summer months were, without exception, warmer and wetter than usual. From September through the end of the year temperatures were generally below normal. Fall precipitation varied about the norm, being low in September and October and generally high the last two months.

B. Habitat Conditions

1. Water

a. Ninepipe

The reservoir was 5.7 feet below normal level for the first of the year at 2996.1 msl. Levels began to rise in late February, but continued somewhat below normal until mid-May. By June the reservoir exceeded average levels and remained well above normal until mid-October when it had dropped about one foot below the norm. Some inflow was received during December, raising the reservoir about one foot above average by the end of the year.

As expected, the very low levels attained during the fall of 1969 and maintained through the early part of 1970, invited nesting in precarious sites and caused heavy loss to the rising waters of the late spring.

b. Pablo

Pablo reservoir was dry until April. On May first the water was still 13 feet below normal, but by the end of the month, the level had exceeded the average by a foot. The reservoir continued way above normal until late September, and is about one and one half feet below the norm at the end of the year.

The rapidly rising water level undoubtedly took its toll of waterfowl nests, but the effect was not so drastic as Ninepipe due to much lower nesting populations.

2. Food and Cover

a. Ninepipe

Early spring cover conditions still showed effects of over use by cattle in 1969, as reported last year. Drastic reduction in use, (90 A.U.M.'s compared to 270 A.U.M.'s) left much more desirable situation in 1970.

Aquatic plant production was excellent again this year, with extensive beds of Sago and other pond weeds. Smartweed growth was also very good. The drawdown in August and September exposed many acres of outstanding goose browse and made other aquatic foods readily available to the ducks.

Cereal grains produced on the surrounding State owned wildlife management area, provided ample food for migrant and wintering Birds.

b. Pablo

Upland cover conditions at Pablo were good all year. Tree and shrub areas fenced last year quickly increased in understory density and provided excellent cover for upland birds and deer.

Aquatic production was not checked this year, but cursory inspection showed few beds. As usual, emergent vegetation was almost non-existent. Goose browse was fairly good on exposed flats during fall months.

II. WILDLIFE

A. Migratory Birds 1. Waterfowl

a. Ninepipe

Whistling Swans were first noted the week of February 22. They peaked three weeks later at 230 birds and were last seen April 15. The bulk of the birds had gone through by the end of March. Few swans used the refuge during fall migration. They arrived, as seems to be their normal procedure, during opening week of waterfowl hunting season. The peak of 60 birds occurred the week of October 25. A small number, probably cripples, remained through December 31.

Canada geese arrived the week of February 22 also, peaking at 266 two weeks later. About a dozen Snow geese used the reservoir during the entire month of April.

The Canadas quickly started establishing territories and selecting nest sites. Most nested on existing islands and

tree platforms, but two pairs claimed the new islands which had been built in January. Production was estimated at 125 goslings.

By mid August the population had climbed to 515 and leveled there until September 20 when migrants swelled to nearly 900. Numbers fluctuated, but generally dropped until the end of the year.

Mallards were first seen on the refuge the same week as the Swans and geese although some birds wintered along the river and small creeks in the area. Other species began to arrive the following week. All species had made their appearance by the second week of March, except Redheads and Cinnamon teal which arrived March 22 and April 26 respectively. Spring peak was a meager 5,130 birds the last week in April.

Duck breeding pair counts, made on May 28, revealed only 193 pairs around the reservoir. As mentioned before, duck nesting efforts were hampered by rising water levels and production was estimated at 324 young, primarily Mallards.

Pintails began to arrive in mid-August, peaking at slightly over 21,000 the second week of September. That week produced the highest duck population of the fall season with 33,840 birds. Pintails had passed through by the 20th of Sept. and duck totals dropped to approximately 8,500, primarily Widgeon and Mallards. Mallards peaked at 13,000 about the end of November. They remained through the end of the year, maintaining a small patch of open water near the north end of the reservoir and feeding on the State Management Area.

b. Pablo

Pablo's dry condition pretty well eliminated spring waterfowl use. The first birds were noted in mid-April and nearly all species were represented at that time. Spring peaks were two Canada geese, 510 ducks and 65 coot.

Summer populations were very low with only 20 geese and under 200 ducks. Production was estimated at 12 Canada geese, 69 ducks and 15 coots.

The fall migration showed peaks of 15 Whistling swan on October 4, 1,305 Canada geese, September 20, and 19,960 ducks the first week in September. Pintails made up the bulk of the fall duck population, peaking at just over 13,000. Duck use dropped sharply after the Pintails departed and remained under 2,000 the rest of the fall.

2. Marsh and Water Birds

Both Red-necked and Western grebes nested in substantial

numbers at Ninepipe, producing approximately 75 young each.

Great Blue Herons established a colony of 52 active nests on islands near the northwest end of the reservoir. These birds apparently moved to the refuge from the colony on the Flathead River. An estimated 75 young birds were produced.

Forster's and Black Terns were first recorded on May 8 and June 1, respectively. Both species nested, producing about 50 young each. California and Ring-billed gulls had a successful nesting season, raising an estimated 300 and 200 young respectively.

B. Upland Game Birds

Ring-necked Pheasant populations appeared quite good on both refuges. Production was approximately 125 at Ninepipe and 100 at Pablo. Both refuges experienced heavy influx from surrounding areas during hunting season and year end totals were estimated at 350 at Ninepipe and 250 at Pablo.

C. Big Game Animals

Several Whitetailed deer were observed at Pablo refuge this year. The total was approximately seven head, with at least one set of twin fawns.

D. Fur Animals, Predators, Rodents and Other Mammals

Striped skunks were numerous on both areas. Badgers and long-tailed weasels were observed on both refuges this year. Few Muskrats were noted at Ninepipe, probably due to low over winter water levels.

E. Hawks. Eagles, Owls, Ravens and Magpies

Bald Eagles were first noted March 2 at Ninepipe. Two adults and one immature bird used the refuge for about three weeks. In late December four adult and two immature birds were present, cleaning up crippled waterfowl.

One Golden eagle was noted on each refuge during April, and two birds were present during the fall months.

A single Osprey was recorded at Pablo in late August. Few other raptors were noted on either refuge.

F. Other Birds

No unusual sightings or new species were recorded on either area. Both refuges support interesting populations of warblers, sparrows and other passerines.

G. Fish

Bass fishing was very popular at Ninepipe this spring and early summer. Fish were not running as large as they have in past years, but most anglers were able to creel an occasional fish in the two to three pound range. The biggest share of the creel consisted of yearling fish in the 8-12" class.

The Bureau's Ennis National Fish Hatchery stocked 30,000 rainbows in the 8" and larger class at Pablo during July. Fishing pressure was very light this summer, but should increase substantially this winter after waterfowl season. Pablo is noted for producing good sized trout and usually attracts many anglers from the local area, but dry conditions of the reservoir over winter of 1969-70 put a damper on the sport.

H. Reptiles

Nothing to report.

I. Disease

Nothing to report.

III. REFUGE DEVELOPMENT AND MAINTENANCE

A. Physical Development

Eight small earthern islands were constructed with a bulldozer to provide goose nesting sites in the Northwest portion of the Ninepipe refuge. Three straw bales were placed on each for nesting platforms. Canada geese showed interest in all of the islands and successfully nested on at least two.

Six information leaflet shelters were designed and constructed in the refuge shop. These will be installed at strategic points at Ninepipe, Pablo refuges.

The Ninepipe picnic area was moved and kept free of garbage throughout the public use period.

B. Plantings

Nothing to report.

C. Collections and Receipts

Nothing to report.

D. Control of Vegetation

1. Biological Control

Nothing to report.

2. Chemical Control

Nothing to report.

E. Planned Burning

Nething to report.

F. Fires

Nothing to report.

IV. RESOURCE MANAGEMENT

A. Grazing

1. Ninepipe

The Bureau of Indian Affairs issued the Ninepipe grazing permits for a maximum of 100 A.U.M. S in accordance with the new range survey conducted in 1969. The permittee turned in 23 head which used 92 AUM'S during summer months. Cover conditions were much improved this year following the reduction in use.

2. Pablo

The permittee at Pablo grazed 87 animals for four months, totalling 348 A.U.M.*S. No grazing problems were evident here except that some damage to trees and shrubs was noted where cattle had congregated for shelter. Some tree areas have been fenced and others will be done in the immediate future.

B. Haying

None.

C. Fur Harvest

Trapping is allowed on refuges under control of the Bureau of Indian Affairs, but little activity has occurred in the past few years.

V. FIELD INVESTIGATIONS OR APPLIED RESEARCH

A. Progress Reports

1. Waterfowl Banding

Preseason Mallard banding was unsuccessful this year. Few birds were present prior to hunting season and none were established on the baits. Montana Fish and Game Department again assigned a man to the project on a daily basis, keeping baits and nets under constant surveilance, but to no avail.

VI. PUBLIC RELATIONS

A. Recreational Uses

Visitor use of Ninepipe and Pablo was estimated at 8,500 actual visits, up from 6,700 last year. Fishing continues to be the most popular activity at both refuges.

B. Refuge Visitors

Included in Bison Range report.

C. Refuge Participation

Included in Bison Range report.

D. Hunting

There is no public hunting on either refuge. However, the State owns and manages considerable acreage around the refuges for this activity. This year the goose season was shortened, closing on December 6. In past years a longer season has been adopted with provisions to close that portion of the State west of the continental divide when a desired kill of 400 had been attained. This closure has normally occured about the first week in December. The kill was reported to be similar to the average of the past several years and there was none of the usual confusion surrounding the early closures. The State moved the pits in their controlled hunting area back 100 yards from the refuge boundary, to provide a retrieving zone. Hunter reaction was highly favorable and the usual border line hunting and refuge trespass problem was largely solved.

The opening week-end of pheasant season showed success was down slightly from last year, at 1.5 birds per hunter compared to 1.7 in 1969. State check station figures showed the hen kill was about the same as last year, at 25% of the bag. (State limit is

three pheasants per day, one of which may be a hen)

E. Violations

Included in Bison Range Report.

F. SAFETY

Included in Bison Range Report.

VII. OTHER ITEMS

A. Items of Interest

The Western Montana district supervisor for the Division of Wildlife Service continues to occupy Ninepipe headquarters facilities.

B. Report Credits

Section III, Foreman May All other sections, Assistant Mgr. Barber Typing, Clerk McCollum 2-1750 Form NR-: (Rev. March 1953)

WATERFOWL

EFUGE	•				(2)		James			
	:		Weeks	of r	eport	ing p	eriod			
(1) Species	1/4 - 10:	1/11 -17	1/18 -24	1/25 -31	2/1 - 7	2/8 - 14:	2/15 -21:	2/22- 29	3/1 - 7	10
wans:			1							1
Whistling								30	60	23
Trumpeter										
eese:										
Canada								100	100	26
Cackling									PU SALES PROPERTY.	
Brant										
White-fronted Snow										-
Blue										
STATE TOTAL GEISE								100	100	2
icks:										-
Mallard								300	300	5.
Black										
Gadwall										
Baldpate									100	5
Pintail									65	1,3
Green-winged teal										
Blue-winged teal										
Cinnamon teal										
Shoveler		Mark Mary 1								
Vlood										
Hedhead									18 18 1	
Ring-necked							7			
Canvasback										
Scaup										1
Goldeneye Bufflehead				*		-				-
Ruddy										
The state of the s										
97/99 Merganeer				-					160	
TOTAL DUCKE:								300	465	2,7
ot:								STREET, STREET		47 74

3 - ()a Cont. N (Rev. March 1953)

WATERFOWL (Continuation Sheet)

REFUGE NIMEPIPE						MON	THS OF	January	TO Apr	11 , 19	70
					2)			:	(3)	: (4)	
		Weeks	of	repos	rting	per	iod		Estimated	: Producti	
(1)	3/15-21	3/22-28	3/29-4/4	W5-11	4/12-18	L/19-25	W26-5/2	:	waterfowl	:Broods:Es	
	711 :	12	13	TI	15	16		18 :	days use	: seen :	tota
Swans:		200		103							
Whistling	230_	100			-				4,620		
Trumpeter										-	
Geese:	~									250	
Cackling	266	150		93	85	85	-65		9,093		
Brant											
White-fronted											
Snow				11	30						
Blue				11	13	11	11		322		
	266	150	91	102	98	96	76		0.135		
Ducks:	200			1112			10		9,415		
Mallard	530	500	185	185	550	700	1,120		38,500		
Black	234	XX			33.9	- AU	1010		20,70	_	
Gadwall									350		
Baldpate	515	500	21.5	24.5	900	500	795				
Pintail	2.310	1 000	120	130	100	100			27,105 10,635		
Green-winged teal	60	100	70	70	225	200	125		9.170		
Blue-winged teal									4,170		
Cinnamon teal							15		105		
Shoveler	-	50	200	200	400	400	185		12.215		
Wood					-						
Redhead		50	85	85	50	150	205		4.375		
Ring-necked									1,310		
Canvasback	80	100	165	165	75	100	250		7,105		
Scaup			90	90	60	200	320		5,320		
Goldeneye	106	100		10	25	25	25		3.255		
Bufflehead			25	25		10	70		1.225		
Ruddy							900		6,300		
97797 Merganour	65	50	15		25	25	40		2 (%)		
	0 200	2 150		3 000	9 995		6 300				
TOTAL DUCES:	2,700	2,450	1,870	1,870	2,325	2,040	5,130	75-15-16	158,550		
Coot:				1 115	1-444	2,500	1,200		61,775		
				(0)	rer)			No Paris			

	Total Days Use :	(6) Peak Number:	Total Production	SUMMARY
Swar	18			Principal feeding areas Grain Fields on surrounding
Gees	9,415	266		State -comed management area
Ducl	cs <u>158,550</u>	5,130		Principal nesting areas
Coot	ts61.775 :	1.210		
				Reported by Robert L. Berber
	INST	TRUCTIONS (See	Secs. 7531 through	7534, Wildlife Refuges Field Manual)
(1)	Species:	reporting per	riod should be adde	on form, other species occurring on refuge during the in appropriate spaces. Special attention should be given ational significance.
(2)	Weeks of Reporting Period:	Estimated ave	erage refuge popula	tions.
(3)	Estimated Waterfowl Days Use:	Average week	ly populations x nu	mber of days present for each species.
(上)	Production:	breeding area	as. Brood counts si	ced based on observations and actual counts on representative hould be made on two or more areas aggregating 10% of the ving no basis in fact should be omitted.
(5)	Total Days Use:	A summary of	data recorded under	(3).
(6)	Peak Number:	Maximum numbe	er of waterfowl pre	sent on refuge during any census of reporting period.
(7)	Total Production:	A summary of	data recorded under	· (4).

Interior Duplicating Section, Washington, D. C. 1953

Form NR-(Rev. March 1953)

WATERFOWL

REFUGE Ninepipe						MONTHS OF	No.	TO	Saptombas	_, 1970_
					(2)					
3			Week	s of r	eport	ing p	eriod			
(1)	5/3 - 9	:5/20-16	: 5/17-23	15/24-30	: 5/31-6/6	: 6/7-13	6/14-10 :	6/21-27	: 1,/29-7/4:	7/5-11
	1	: 2	: 3	1 4	1 5	: 6 :	7 :	8	: 9 :	10
Swans:										
Whistling		-	-			-			-	
Trumpeter Geese:				-	-	-			-	
Canada	148	171	250	270	270	270	270	270	270	270
Cackling			-	-	-	-				
Brant	-				11				-	
White-fronted		1								
Snow	7	-								
Blue										
ALEX Total Coese	151	171	250	270	270	270	270	270	270	270
Ducks:										
Mallard	100	150	200	300	300	300	300	300	300	300
Black										
Gadwall	30	10	10	10	10	10	10	10	10	10
Baldpate	70	25	25	25	25	25	50	50	50	50
Pintail	30	20	25	35	100	100	100	100	100	100
Green-winged teal	60		10	10	10	10	10	10	10	10
Blue-winged teal	30	25	35	50	70	50	50	75	75	100
Cinnamon teal	10	5	10	10	1.0	10	10	10	10	10
Shoveler	95	40	20	20	20	20	20	40	40	40
Wood	20	20	5	5	5	30	5	5	5	5
Redhead Ring-necked	5	5	20	35	15	5	75	100	100	150
Canvasback	20	25	20	20	20	25	5	30	30	5
Scaup	50	10	20	20	20	20	40	10	- 40	60
Goldeneye	-		-	1		1			-	- 60
Bufflehead	5		-	-						
Ruddy	340	80	20	20	20	20	20	20	20	40
Other										
Total Ducks	870	450	425	565	630	650	725	795	795	930
						A THE STREET			7 7 7 7 7	
Coot:	250	280	280	280	230	280	300	350	400	400
			HE WILLIAM							tellan en el la companya de la companya della companya de la companya de la companya della compa

3 -1750a Cont. N (Rev. March 1953)

WATERFOWL (Continuation Sheet)

Minepipe MONTHS OF May TO. Sept. , 19 70 REFUGE (2) (3) (L) Weeks of reporting period Estimated : Production :7/12-18:7/19-25:7/26-8/1 8/2-8:8/9-15:8/16-22:8/23-29: (1) waterfowl :Broods:Estimated : 11 : 12 : 13 : 14 : 15 : 16 : 17 : 18 days use : seen : total Species Swans: Whistling Trumpeter Geese: 270 325 325 325 485 335 515 (5039) 14. Canada 35.273 125 Cackling Brant White-fronted Snow (4) Blue White Total Geese 325 270 325 325 935 185 515 (50k2) 34_201 Ducks: Mallard 300 300 400 400 1960 1000 1520 (Shea) 59.010 Black Gadwall 20 20 20 20 20 1_890 50 (2701 Baldpate 50 50 50 200 ASO 50 AFRA (E175) 25 225 Fintail 100 100 100 500 2000 100 2.760 (17250) 120.750 Green-winged teal 10 10 10 10 50 38 KO (360) 2.520 Blue-winged teal 100 100 150 150 200 175 015 (2630) 18.410 Cinnamon teal 10 10 10 10 10 10 10 (ILE) 1-155 Shoveler 40 60 60 60 100 200 7.525 288 (1075) Wood 5 5 5 (95) KOK Redhead 150 150 150 200 AOU Lon 1600 (36KE) 25_585 Ring-necked 5 5 5 K (86) gor Canvasback 50 75 75 75 120 6.905 120 (005) 120 Scaup 60 60 60 60 300 210 200 LIKOOL 10.500 Goldeneve Bufflehead (5) 35 Ruddy 40 60 60 (1360) 60 150 190 200 9.520 Other Total Ducker 940 005 1155 1205 3060 7095 21655 12950 23 324 300,650 600 600 600 2880 000 500 142K Coot: 104,335 400 (OVER)

	(5) Total Days Use	(6) Peak Number	(7): Total Production	SUMMARY
Swans				Principal feeding areas Aquatios in reservoir and sur-
Geese	35,294	515	125	rounding cereal grain fields.
Ducks	300,650	21.655	328	Principal nesting areas Islands in morth west pertion
Coots	104,995	4,625	800	of reserveir
				Reported by R. L. B.
	INS	TRUCTIONS (See	Secs. 7531 through	7534, Wildlife Refuges Field Manual)
(1) Spe	ecies:	reporting pe	eriod should be adde	on form, other species occurring on refuge during the d in appropriate spaces. Special attention should be given ational significance.
11	eks of porting Period:	Estimated as	verage refuse popula	tions

(3) Estimated Waterfowl Days Use:

Average weekly populations x number of days present for each species.

(4) Production:

Estimated number of young produced based on observations and actual counts on representative breeding areas. Brood counts should be made on two or more areas aggregating 10% of the breeding habitat. Estimates having no basis in fact should be omitted.

(5) Total Days Use:

A summary of data recorded under (3).

(6) Peak Number:

Maximum number of waterfowl present on refuge during any census of reporting period.

(7) Total Production:

A summary of data recorded under (4).

WATERFUJL

REFUGE Ninepipe Nat:	ional Wild	life Refug	ge			MONTHS O	F Septem	per TO	December	, 1970
			Weeks	of r	(2) eport	ing n	eriod			
		9/6-9/12	9/13-9/19	19/20-9/26	:9/27-10/3	10/4-10/10		171/18-10/21	10/25-10/31	:11/1-11/7
Species :	1 :	2	: 3	: 4	: 5	6	7	8	: 9	: 10
Swans: Whistling		THE REAL PROPERTY.				15	15	30	60	60
Trumpeter								-		1
Geese:									-	-
Canada	485	405	405	895	895	895	670	670	705	705
Cackling										
Brant										
White-fronted		15	15	15	15	15	15			
now						5	5	5	5	
Flue										
XXXXXXX TOTAL GEESE	485	1.20	420	910	910	915	690	675	710	705
Ducks:								0 3 . 5	0.315	1 , 000
Mallard	1.960	5,000	5,000	740	740	2,500	3.145	3.145	3.145	6,000
Black		7.00	7.00	70		50	700	100	100	
Gadwall Paldpate	2 520	100	100	50	50	50	100	100	2,170	2,000
raidpate	3.530	6.480	6.480	6.550	6,550	4,000	2,170 825	825	825	400
reen-winged teal	12,760	21.060	21,060	365	365	500	645	645	645	300
Plue-wired teal	(7.5	200	200	30)	707	300	04)	04)	04)	1
inramon teal	10	200	200							
hoveler	200			100	100	200	200	200	200	200
ood							200	200		
Fedhead	1,600	200	200	55	55	100	100	100	100	100
Ping-necked	5									
Canvasback	120									
caup	300	200	200	50	50	50	50	50	50	50
Moldeneye										50
Bufflehead							300	100	-	3.66
Ruddy	200	100	100	50	50	50	100	100	100	100
Other										
TOTAL DUCKS	21,655	33,840	33,840	8,405	8,405	8,050	7,335	7,335	7,335	9,200
							Transcond S			
Coot:										
	8,000	8,000	8,000	4,825	4,825	1,000	650	650	650	200

WATERFOL (Continuation Sheet)

FEFUGE Ninepipe Nati	ional Wil	dlife kef	uge			MONT	THS OF Se	eptember	TO Dece	ember,	1970
	11/8-11/1:	Weeks 411/5-11/21: 12:	o f 11/22-11/8 13	(2 repor 111/29-12/2 114:	ting 12/6-12/12	peri 12/13-12/19 16:	o d 12/30-12/36 17 :	12/27-1/	(3) Estimated waterfowl days use	: Production : Broods	tion:Estimated: total
Swans:	40	20	20	10	10	5	5	5	2,065		
Whistling Trumpeter	40	20	20						2,009		1
Geese:								The state of the s			
Canada	400	350	265	200	200	100	100	35	58,660		
Cackling											
8 Brant									100		
White-fronted		-							630		-
Snow Blue									140		
CXXXX TOTAL GEESE	400	350	265	200	200	100	100	35	59,430		
Ducks:									27,142		
Mallaid	8.000	10,000	12,850	13.000	13,000	10.000	9,000	_ 8.000	806.575		
Black											
Cadwall						~~~			4.550		
Baldrate	500_	500	50	50	50	50	50	50	303,800		-
Fintail Green-winged teal	100	50							415,765		
Blue-winged teal	300	50							34,055 9,205		
Cinnamon teal									70		
Shoveler .	50								10,150		-
Wood									35		
Redhead	50								18,620		
Ring-necked									35		
Canvasback		-	-						840 7,700		
Scaup Goldeneye	50	150	150	200	200	200	. 200	200			
Bufflehead	100	150	150	200	200	200	200	200	10,150	-	-
Ruddy	50	25							7,175	•	
Other											
TOTAL DUCKS	9,200	10,775	13,050	13,250	13,250	10,250	9,250	8,250	1,628,725		
Coot:	0	0	0	0	0	. 0	0	0	257,600		
				(ov	er)						

-	(5) Total Days Use:	(6) (7) Peak Number: Total Production	SUMMARY
Swan	2,065	60	Principal feeding areas Aquatics in reservoir and
Gees	se 59,430 - :	915	small grains on surrounding State Management Area.
Duck	is 1,628,725	33,840	Principal nesting areas
Coot	257,600	8,000	
			Reported by Robert L. Barber
	INS	TRUCTIONS (See Secs. 7531 throu	gh 7534, Wildlife Refuges Field Manual)
(1)	Species:		ed on form, other species occurring on refuge during the ded in appropriate spaces. Special attention should be given national significance.
(2)	Weeks of Reporting Period:	Estimated average refuge popu	lations.
(3)	Estimated Waterfowl Days Use:	Average weekly populations x	number of days present for each species.
(h)	Production:	breeding areas. Brood counts	duced based on observations and actual counts on representative should be made on two or more areas aggregating 10% of the having no basis in fact should be omitted.
(5)	Total Days Use:	A summary of data recorded un	der (3).
(6)	Peak Number:	Maximum number of waterfowl p	resent on refuge during any census of reporting period.

(7) Total Production: A summary of data recorded under (4).

3-1750 Form NR-1 (Rev. March 1953)

WATERFOWL

			Wash		(2)					
(1)	8/30-9/5	9/6-9/12	Weeks	19/20-9/26	e p o r t	:10// ₋ 10/1	erio (1790/18_10/	2410/25-10/31	:11/1_11
Species :	1	: 2			: 5	: 6	: 7	: 8	: 9	: 10
Swans:										
Whistling						15	15	30	60	60
Trumpeter										
eese:										
Canada	1 485	405	405	895	895	895	670	670	705	705
Cackling										
Brant										
White-fronted		15	15	15	15	15	15			
Snow						5	5	5	5	
Blue										
XXXXXXX TOTAL GEESE	485	420	420	910	910	915	690	675	710	705
ucks:										
Mallard	1.960	5.000	5.000	740	740	2.500	3.145	3.145	3.145	6.000
Black								الأكبير حتيالة	المرسيسي إ	
Gadwall		100	100	50	50	50	100	100	100	
Baldpate	3.530	6,480	6,480	6.550	6.550	4,000	2,170	2,170	2,170	2,000
Pintail Pintail	12,760	21.060	21,060	445	445	600	825	825	825	400
Green-winged teal	50	500	500	365	365	500	645	645	645	300
Blue-winged teal	915	200	200							
Cinnemon teal	10									
Shoveler	200			100	100	200	200	200	200	200
Wood	E									
Redhead	1,600	200	200	55	55	100	100	100	100	100
Ring-necked	5									
Canvasback	120									
Scaup	300	200	200	50	50	50	50	50	50	50
Goldeneye										50
Bufflehead										
Ruddy	200	100	100	50	50	50	100	100	100	100
Other										
TOTAL DUCKS	21,655	33,840	33,840	8,405	8,405	8,050	7,335	7,335	7,335	9,200
								1	1	
oot:										
	8,000	8,000	8,000	4,825	4,325	7 000	/		1	
	, 0,000	, 0,000	, ,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	4,02)	40,65	1,000	650	650	650	200

	Total Days Use :	(6) Peak Number	(7): Total Production	SUMMARY
Swans	2,065	60		Principal feeding areas Aquatics in reservoir and
Geese	59,430	915		small grains on surrounding State Management Area.
Ducks	1,628,725	33,840		Principal nesting areas
Coots	257,600	8,000		
				Reported by Robert L. Barber

INSTRUCTIONS (See Secs. 7531 through 7534, Wildlife Refuges Field Manual)

- (1) Species: In addition to the birds listed on form, other species occurring on refuge during the reporting period should be added in appropriate spaces. Special attention should be given to those species of local and national significance.
- (2) Weeks of
 Reporting Period: Estimated average refuge populations.
- (3) Estimated Waterfowl
 Days Use: Average weekly populations x number of days present for each species.
- (4) Production: Estimated number of young produced based on observations and actual counts on representative breeding areas. Brood counts should be made on two or more areas aggregating 10% of the breeding habitat. Estimates having no basis in fact should be omitted.
- (5) Total Days Use: A summary of data recorded under (3).
- (6) Peak Number: Maximum number of waterfowl present on refuge during any census of reporting period.
- (7) Total Production: A summary of data recorded under (4).

3-1751 Form NR-1 (Nov. 1945,

Ninepipe

MIGRATOR __RDS (other than waterfowl)Jan Months of ...

Apr

70

(1)	(2	2)	(3	3)	1 6	4)		(5)		(6)
Species	First		Peak No			Seen	I	Production	n	Total
Common Name	Number	Date	Number	Date	Number	Date	Number Colonies	Total # Nests	Total Young	Estimated Number
Water and Marsh Birds										
Common Loon	2	4/29	2	4/29	Still	Present				
Red-necked Grebe	1	4/7	30	4/29	H					
Kared Grebe	30	4/29	30	W29						
Western Grebe	2	₩29	2	4/29						
Great Blue Heron	5	3/12	40	4/29						
Shorebirds, Gulls and Terns:										
Killdeer	2	3/12	50	4/29	Still P	esent				
California Cull	5	4/29	5	4/29	96					
Ring-billed Gull	3	3/2	150	W/29	87	"				
										regulate interest and
				Hiting						
				ALTERNATION IN	FER STATE			A 1 1 1 1		

(over)

	(1)	10	1				1		15)	-17	(0)
III.	Doves and Pigeons: Mourning dove White-winged dove	(2					1)		(5)		(6)
IV.	Predaceous Birds: Golden eagle Duck hawk Horned owl Magpie Raven Crow	1	3/12	2	4/7	2	₩7				
	Bald Ragle	1	3/2	2	3/12	2	3/12				
							Reported	by Ro	bert L. B	arber	

INSTRUCTIONS

(1) Species:

Use the correct names as found in the A.O.U. Checklist, 1931 Edition, and list group in A.O.U. order. Avoid general terms as "seagull", "tern", etc. In addition to the birds listed on form, other species occurring on refuge during the reporting period should be added in appropriate spaces. Special attention should be given to those species of local and National significance. Groups: I. Water and Marsh Birds (Gaviiformes to Ciconiiformes and Gruiiformes

II. Shorebirds, Gulls and Terns (Charadriiformes)

III. Doves and Pigeons (Columbiformes)

IV. <u>Predaceous Birds</u> (Falconiformes, Strigiformes and predaceous Passeriformes)

(2) First Seen: The first refuge record for the species for the season concerned.

(3) Peak Numbers: The greatest number of the species present in a limited interval of time.

(4) Last Seen: The last refuge record for the species during the season concerned.

(5) Production: Estimated number of young produced based on observations and actual counts.

(6) Total: Estimated total number of the species using the refuge during the period concerned.

3-1751 Form NR-17 (Nov. 194.

MIGRATOR SERDS (other than waterfowl)

Refuge Rinesipe

Months of to Sopt. 195 70

Species Common Name Water and Marsh Birds: Common Loon Red-necked Grobe	Number	Date	Peak Nu		Number	Seen Date		Total # Nests	Total Young	Total Estimated Number
. Water and Marsh Birds:	Provious		Number	Date	Number	Date				
. Water and Marsh Birds:	Provious		Number	Date	Number	Date	Colonies'	Nests	Young	Number
Common Loon		Period								
		Period								
Res-marked Challe		TOTAL TOTAL	,	5/8	81111	Present				
G-191-191 (Fett	Previon	Period	225	7/15	St111	Propent			75	225
Rared Grabo	•	•	200	5/8					Ubiti	owa
Vestora Grebe			225	7/15	•				75	225
Great Blue Heren	•		180	7/15	•	•	,	52	75	180
Pied-billed Grebe	1	8/21	1	8/21	•	•			Unio	NONE .
Shorebirds, Gulls and Terns:										
Common Snipe	5	5/8	200	7/15	8:111	Present			100	
Porester's Tera	15	5/8	75	7/15	91				50	
Black Tern	1	6/1	100	7/15	•				50	
Ellideer	Previou	s Period	500		••	•			360	
California Gull	•	•	1000	8/21		•			300	
Ring-mooked Gull	•	•	750	8/21	•				200	

(1)	(2		-01		(4	1)	(5)	(6)
Doves and Pigeons: Mourning dove White-winged dove	10	5/15	100	8/15	Still	Present			
Predaceous Birds: Golden eagle Duck hawk Horned owl Magpie Raven Crow									
						Reported	by R. L.	В.	

INSTRUCTIONS

(1) Species: Use the correct names as found in the A.O.U. Checklist, 1931 Edition, and list group in A.O.U order. Avoid general terms as "seagull", "tern", etc. In addition to the birds listed on form, other species occurring on refuge during the reporting period should be added in appropriate spaces. Special attention should be given to those species of local and National

priate spaces. Special attention should be given to those species of local and National significance. Groups: I. Water and Marsh Birds (Gavilformes to Ciconliformes and Gruilformes

II. Shorebirds, Gulls and Terns (Charadriiformes)

III. Doves and Pigeons (Columbiformes)

IV. <u>Predaceous Birds</u> (Falconiformes, Strigiformes and predaceous Passeriformes)

(2) First Seen: The first refuge record for the species for the season concerned.

(3) Peak Numbers: The greatest number of the species present in a limited interval of time.

(4) Last Seen: The last refuge record for the species during the season concerned.

(5) Production: Estimated number of young produced based on observations and actual counts.

(6) Total: Estimated total period concerned.

3-1751 (4) Form NR-1A MIGRATORY BANDS (Nov. 1945) (other than waterfowl) Refuge Ninepipe Months of September to December 193.70 bas saved III (5) evob beauty estim(6) (1) (2) (3) (4) Species First Seen Peak Numbers Last Seen Production Total Number Total # Total Estimated Common Name Number Number Colonies Nests Number Number Date Date Date Young Golden eagle I. Water and Marsh Birds: Duck hawk Common Loon Previous Period 3 9/1 9/15 3 Red-Necked Grabe 25 9/1 9/10 20 25 Western Grebe 50 10/10 12/29 Eagle Pied-billed Grebe 9/1 9/10 1 Great Blue Heron 9/1 100 Still Present 100 bert L. Barber Reported by INSTRUCTIONS as found in the A O.U. Cherklist, 1931 Edition, and list group in A.O.U. II. Shorebirds, Gulls and In additio etc. terms as Terns: bbs ed bluods olieq ga troger elt galiub courring to those species of local and Nationa be give l attention shoul printe space significance 200 12/21 200 monidae 200 Common Snipe 9/1 12/8 200 ormes and predaceous Strigi oniforme California Gull .000 9/1 11/15 1,000 for the d for the The First reluge reco Ring-billed Gull 750 9/1 5 10/10 750 imited interval o The greatest number o the species present in a sak Numbers Forester's Term 9/1 9/15 for the species The last reflige record luring th Black Tern 100 9/1 100 9/1 100 and actua loed based on observations Estimated number of young prod roduction

Estimated total number of the s(revo) using the refuge during the period concerned.

1	(1)	(2	1	20	BATORY E.	111 (4)		(5)		(6)
II.	Doves and Pigeons: Mourning dove	Previous	Period	100	9/1	(other	9/15	oqk	ge Mine	Refu	Nov. 1945
	White-winged dove	9		Last	ibers	Peak Nu	пев	(2) First 1		(1)	
	Predaceous Birds: Golden eagle	Number Colonies	10/26	2	11/25	190	11/25	Number		mon Name	00
	Duck hawk Horned owl					157			Birds:	dereM bas	l. Water
	Magpie Raven		9/15	T	1/6	\$	Period	Previous		Loon	Common
	Crow		01/6	08	1/6	25	18	199		sked Greb	Red-Ne
	Bald Eagle	9	11/25	7	11/25	3	12/29			oders0.s	Moster
	Data Sagro		9/10	11	9/1	5	(1)	10.	00	illed Gre	Pied-b
	3,00		Jmscort	TIFAS	1/6	1.00		- 10		thue Here	Great
							Reporte	d by	bert L.	Barber	

INSTRUCTIONS

(1) Species:

Use the correct names as found in the A.O.U. Checklist, 1931 Edition, and list group in A.O.U. order. Avoid general terms as "seagull", "tern", etc. In addition to the birds listed on form, other species occurring on refuge during the reporting period should be added in appropriate spaces. Special attention should be given to those species of local and National significance. Groups: I. Water and Marsh Birds (Gavilformes to Ciconiiformes and Gruilformes)

II. Shorebirds, Gulls and Terns (Charadriiformes)

III. Doves and Pigeons (Columbiformes)

IV. Predaceous Birds (Falconiformes, Strigiformes and predaceous Passeriformes)

Hing-billed Guil

Forester's Term

(2) First Seen: The first refuge record for the species for the season concerned.

(3) Peak Numbers: The greatest number of the species present in a limited interval of time.

(4) Last Seen: The last refuge record for the species during the season concerned.

(5) Production: Estimated number of young produced based on observations and actual counts.

(6) Total: Estimated total number of the species using the refuge <u>during the period</u> concerned.

3÷1750b Form NR~1B (Rev. Nov. 1957)

UNITED STATES DEPARTMENT OF THE INTERIOR FISH AND WILDLIFE SERVICE BUREAU OF SPORT FISHERIES AND WILDLIFE

WATERFOWL UTILIZATION OF REFUGE HABITAT

Reported by _	R. L. B.		Title	Asst. Re	. Mgr.	
(1)	(2)		A CONTRACTOR OF THE PARTY OF TH	(3)	(4)	(5)
Area or Unit	Habit		•	()	Breeding	()
Designation		Acreage		Use-days	Population	Production
DestRuggion		MCI eage		Use-days	TOPULEULOIT	110000010
	Crops	0	Ducks	1,564,360	386	324
	Upland	246	Geese	128,759	70	125
	Marsh	572	Swans	4,620	0	0
	Water	1,204	Coots	216,685	200	400
	Total	2,022	Total	1,914,424	656	849
	Crops		Ducks			
	Upland		Geese			
	Marsh		Swans			
	Water		Coots			
	Total	,	Total			
	Crops		Ducks			
	Upland)	Geese			
	Marsh		Swans			
	Water		Coots			
	Total		Total			
	Choose	ω es es es	Ducks			
	Crops Upland		Geese			
	Marsh -		Swans		-	
	Water		Coots			
	Total		Total			
	Common		Duoles		0 - 0 - 0	
	Crops		Ducks			
	Upland		Geese		(2000)	
	Marsh		Swans			
	Water		Coots			
	Total	C) e4 (5 (5)	Total			
	Crops		Ducks	(
	Upland		Geese			
	Marsh		Swans			
	Water		Coots			
	Total		Total			
	Crops		Ducks			
	Upland		Geese			COMPANY AND
	Marsh		Swans			
	Water		Coots			
	Total		Total			

(over)

Refuge Ninepipe onths of Jan to Apr , 1970

			(-)								
(1) Species	(2) Density		(3) Young Produce	i Rati) C Lo	R	(5) emova	ls	(6) Total	(7) Remarks	
Common Name	Cover types, total acreage of habitat	Acres per Bird	Number broods obs'v'd. Estimated	Test of Perce	entage	Hunting	For Restocking	For Research	Estimated number using Refuge	Pertinent information specifically related introduction	equested.
Fing-necked pheasant	b 246 a. grassland								100		
Gray partridge	246 a. grassland								10		
								1			

1		
Form	NR- ?	
(Apr:	il	16)

UPLAND GAME PTRDS

Refuge Nine Pipe (onths of my to sept., 19 70

(1) Species	(2) Density	You Produ	ng ced	(4) Sex Ratio	R	(5) emova:	ls	(6) Total	(7) Remarks
Common Name	Cover types, total acreage of habitat	Number broods obs'v'd.	Estimated Total	Percentage	Hunting	For Restocking	For Research	Estimated number using Refuge	Pertinent information not specifically requested. List introductions here.
Ring-necked Pheasant	246 a. Grass- land	0	125					200	
Gray Partrid	e 246 a. Grass-	0						35	
							1		
								4	

Refuge Ninepipe

UPLAND GAME BIH

Months of September

December , 19 70 to

(1) Species	(2) Density	You Produ	ng ced	(4) Sex Ratio	R	(5) emova	ls	(6) Total	(7) Remarks
Common Name	Cover types, total acreage of habitat	Number broods obs'v'd.	Estimated Total	Percentage	Hunting	For Restocking	For Research	Estimated number using Refuge	Pertinent information not specifically requested. List introductions here.
Ring-necked pheasant	246 a. Grassland							350	Heavy influx into refuge during hunting season.
Gray Partridge	246 a. Grassland							25	
								1	

Refuge Year ending April 30. 1970

Common Name Cover Types & Total Acres Per Acreage of Habitat Animal Habitat Anim	(1) Species	(2) Density				(3) ovale			D	isposi	(4) tion of	Fure			(5)
Common Name Acreage of Habitat Animal Habitat Animal Habitat Acreage of Habitat Animal Ha									Shar	e Trapp	ing	nge	ted		Popula
Deer Nouse Striped Skunk Muskrat 1,672 a. marsh & water Mink Badger Wessel Bl8 a. marsh & upland Beaver Columbian Groundsquirrel 246 a. grassland Pocket Gopher """	Common Name		Per	Hunting	Fur Harvest	Predator	For Re- stocking	For Re-	A STATE OF THE REAL PROPERTY AND ADDRESS OF THE PROPERTY AND ADDRESS OF THE REAL PROPERTY AND ADDRESS OF THE PROPERTY AND ADDRESS O	Trappera	Refuge	Total Ref Furs Ship		Fure	tion
	Deer Nouse Striped Skunk Muskrat Mink Badger Wessel Beaver Columbian Groundsquirre Pocket Gopher	1,672 a. marsh & water 2,66 a. grassland & uple 2,000 a. marsh & uple 2,000 a. grassland	end												Moderate 10 10 10 10 10 10 10 10 10 10 10 10 10

REMARKS:

3-1758 Form NR-8 (Rev. Jan. 1956)

Fish and Wildlife Service Brann of Wildlife Refuges

CULTIVATED CROPS - HAYING - GRAZING

Refuge Ninep	ipe			- County	Lake			_ State	Montana	
Cultivated		ittee's Harvested		nment's 5		eturn vested	Total		nd Water-	
Crops Grown	Acres	Bu./Tons	Acres	Bu./Tons	Acres	Bu./Tons	Acreage Planted	fowl Bro	owsing Crops Kind	Total Acreage
							and all i		, Ronan, Mor	ana.
No. of Permittees:	Agricultur	al Operation	ons Nor	ne	Haying O	perations	None	Grazing	Operations	1
Hay - Improved (Specify Kind)	Tons Harvested	Acres	Cash		GRAZING		ber mals	AUM'S	Cash Revenue	ACREAGE
				1.	Cattle	23		92	*	270
				2.	Other					
				1.	Total Re	fuge Acre	age Under	Cultivatio	n	0
Hay - Wild				2.	Acreage	Cultivate	d as Servi	ce Operati	on	0

*See instructions on back.

REFUGE GRAIN REPORT

Refuge Ninepipe W	ildlife Re	fuge					Months of	January	through	December	19570
(1)	(2) On Hand	(3) Received	(4)		GRAIN DI	5) SPOSED OF		(6) On Hand	Propos	(7) ED OR SUITABL	E USE*
VARIETY*	BEGINNING of Period	During Period	TOTAL	Transferred	Seeded	Fed	Total	END OF PERIOD	Seed	Feed	Surplus
Barley	900		900			344	344	556		556	

									Marie Control		
(8) Indicate shipping	or collection	points									
(9) Grain is stored at	Headquar	ters gran	ary								
(10) Remarks	The state was we say the sea and descriptions above as as top the as as any							****************	***		

ANNUAL REPORT OF PESTICIDE APPLI

Refuge

Ninepipe

Proposal Number

Reportificate ar

1970 INSTRUCTIONS: Wildlife Refuges Manual, secs. 3252d, 3394b and 3395. Location Total Amount Total Carrier . Metho Date(s) of List of Chemical(s) Application of of Area Acres and Application Target Pest(s) Used Rate Treated Treated Chemical Applied Rate Applicat (1) (2) (3) (4) (5) (6) (8) (9) NONE

LION

^{10.} Summary of results (continue on reverse side, if necessary)

3-1750 Form NR-. (Rev. March 1953)

WATERFOWL

										Land of the land
REFUGE Pable						MONTHS O	Januar,	TO TO	April	, 1970
	:				(2)					
			Week	s of r		ing p	eriod			
(1) Species	14-	10:1/11 -	17 1/18-24	1/25-31	2/1 - 7	2/8-14	2/17-21	: 2/22-28	:3/1 - 7	:3/8 - 14
Swans:	1							1	Therese	
Whistling										
Trumpeter										
Geese:										
Canada								S Comments		
Cackling										
Brant										
White-fronted		THE RESERVE OF								
Snow		SECTION SECTION						STATE OF THE PARTY.		
Blue								979		
Other								TOTAL		
Pucks:							83	TOTAL SE		
Mallard										
Black										
Gadwall								P PERSONAL PROPERTY.		
Baldpate										
Pintail				100						
Green-winged teal				STORY OF THE PERSON NAMED IN						
Blue-winged teal			· ·							
Cinnamon teal										
Shoveler	The same of									
Wood										
Redhead										
Ring-necked										
Canvasback										
Scaup					THE RESERVE					
Goldeneye								No. of Concession, Name of Street, or other Designation, Name of Street, or other Designation, Name of Street,		
Bufflehead										
Ruddy	Part No.		TO CONTRACT			The state of the s				
Other										
	THE REAL PROPERTY.									
	1				(A. J. P. 104)			1		
Coot:	1								CHE STA	
*			-		-					

3 -1750a Cont. N (Rev. March 1953)

WATERFOWL (Continuation Sheet)

* * . .

REFUGE Pabl	0					MON	THS OF	Jennary	TO Apr	<u>n_</u> ,	19 70
(1)	Weeks of reporti 3/15 -21: 3/22-28: 3/29-4/4 4/5-11: 4/12- 11: 12: 13: 13: 14: 15: 15: 15: 15: 15: 15: 15: 15: 15: 15								: (3) : (4) : Estimated : Production : waterfowl : Broods: Estimate		
Species	3/13 -21.	12	213 W	41 3741	15	M Tabe	レキーソイ	18	days use	: seen :	
Swans:	1		1	PARTIE			MARK MARK				
Whistling											
Trumpeter											
Geese:											
Canada					2	3	2		1.2		
Cackling											
Brant											
White-fronted											
Snow											
Blue		TOM									
Other TOTAL CHASE		MES SECTION	THE RESERVE		2	2					The state of the state of
Ducks:											
Mallard					250	250	250		5,250		
Black											
Gadwall	Marie San				10	10	10		210		Mark Mark
Baldpate					108	100	300		2.100		The second
Fintail											
Green-winged teal					90	30	90	No. of Contract of	630		
Blue-winged teal	MEDICAL SERVICE										
Cinnamon teal		THE OUT	P. 200-12		30	30	10		-220		
Shoveler			-						The state of the s		
Wood		Charles and the same of the sa			N. S. Commission					MI THE REAL PROPERTY.	
Redhead			BARRIOTE.			5	5		105		
Ring-necked											
Canvasback											
Scaup					20	20	20	医医验验	1,90	AND DESCRIPTION	
Goldeneye				Line Barrie							
Bufflehead	NAME OF TAXABLE PARTY.					15	15		11.5		
Ruddy			EN LONG		60	60	60		1.260		BELLEVIA STATE
Other Merganser					5	5	Name and		105		
TOTAL DUCES					520	510	510		10,710		
Coot:					65	65	65		1,365		
				(0	ver)	THE PERSON NAMED IN	1				1

	(3)	(6)	(7)							
	Total Days Use :		: Total Production	SUMMARY						
Swan	s :			Principal feeding areas Surrounding grain fields						
Gees	e <u>2</u>	42								
Duck	8 10.710	510		Principal nesting areas						
Coot	8:	65								
				Reported by Kobert L. Berter						
	INS'	TRUCTIONS (Sec	e Secs. 7531 through	7534, Wildlife Refuges Field Manual)						
(1)	Species:	reporting p	In addition to the birds listed on form, other species occurring on refuge during the reporting period should be added in appropriate spaces. Special attention should be given to those species of local and national significance.							
(2)	Weeks of									
(2)	Reporting Period:	Estimated average refuge populations.								
(3)	Estimated Waterfowl	A		nhan of days mannet for each anada.						
	Days Use:	Average week	kty populations x nu	mber of days present for each species.						
(4)	Production:	Estimated number of young produced based on observations and actual counts on representative breeding areas. Brood counts should be made on two or more areas aggregating 10% of the breeding habitat. Estimates having no basis in fact should be omitted.								
(5)	Total Days Use:	A summary of	f data recorded under	r(3).						
(6)	Peak Number:	Maximum numl	ber of waterfowl pre	sent on refuge during any census of reporting period.						
(7)	Total Production:	A summary of	f data recorded under	r (4).						

WATECONL

EFUCE Pablo						MONTHS OF			September	_,
1					(2)					,
40)			Weeks	of r	eport	ing pe	riod			
(1)	5/3 - 9	5/10-16	5/17-23	: 5/24-30	5/31-6/6	: 6/7 - 13:	6/14-20 :	6/21-27 :	6/28-7/4:	
	1	1 2 1	3	: 4	5	: 6 :	7 :	8 :	9 :	10
wansı					(0.5		×1			
Whistling										
Trumpeter				-		-				
Geneda Canada						1 1				
Cackling		25	20	20	20	20	20	20	20	20
Brant						-				
White-fronted				-						
Snow	5									
Blue										
Attack Total Goese	5	25	20	20	20	20	20	20	20	20
beks:		4.5			20_	20		20	20	
Mallard	225	50	50	50	50	50	50	50	75	75
Black										
Gadwall	45	5	5	5	5	5	5	5	5	5
Baldpate	65	10	10	10	10	10	10	10	10	10
Pintail	35									
Green-winged teal	35									
Blue-winged teal	20	10	10	10	10	10	10	10	10	20
Cinnemon teal	5									
Shoveler	50	5	5	5	5	5				
Vood										
Redhead					20	20	20	20	20	20
Ring-necked										
Canvasback										
Scaup					35	35	35	35	35	35
Goldeneye										
Bufflehead										
Ruddy	15	110	110	100	10	10	10	10 -	10	10
ERRE Morg.	20									
Total Ducks	515	190	190	180	145	145	140	140	165	175
Coot:	0	45	45	45	45	45	60	60	60	60

Comt. NR-1 (Rev. March 1953)

WATERFOWL (Continuation wet)

TO Sept. Publo MONTHS OF May . 19 70 REFUCE (2) (3) To the section (L) Weeks of reporting period Estimated : Production (1) waterfowl . Broods: Estimated 2 8 11 : 12 : 13 : 14 : 15 : 16 : 17 : 18 Species days use seen: total Swanes of the second Whistling Trumpeter Geeses Canada 20 800 (1510) 15 20 150 300 10570 Cackling Brant White-fronted Snow (5) 35 Blue Aver Sotal Gooses 20 20 15 20 150 300 800 (1515) 10605 18 Ducks: 400 1285 (3585)18 100 800 25095 1 Mallard 75 100 100 Black Gedwall . 5 5 5 5 (123) 875 5 Baldpate 750 10885 10 10 15 15 200 400 (1555)6 Pintail 5375 58870 1000 2000 (8410) Green-winged teal (135)945 50 50 Blue-winged toal 2.1 25 25 50 100 150 (510) 3570 20 20 Cinnamon teal (5) 35 Shoveler (75) 525 Wood 20 20 (40) 280 Redhead 20 20 20 50 150 200 425 (1005)7035 Ring-necked Canvasback Seaup 35 100 150 205 (805) 5695 21 35 35 35 Goldeneve Bufflehead o Ruddy (h(K) 3255 10 10 10-10 10 10 10 Other (20) 140 Total Buckst 117145 69 2 175 200 210 240 1915 3735 8275 16735 60 60 60 60 200 (1330)100 325 9310 15 Coot: (OMEL)

	(6) % (7) Peak Number: Total Production	SUMMARY
Goode 10,605	800 12	Principal feeding areas
Dueks 117,145 :	8.275 60	Principal nesting areas West shore of the reserveir
1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1		Reported by R. L. B.
INST	RUCTIONS (See Secs. 7531 through	7534, Wildlife Refuges Field Manual)
(1) Species:		on form, other species occurring on refuge during the d in appropriate spaces. Special attention should be given ational significance.
(2)\ Weeks of Reporting Period:	Estimated average refuge popula	tions.
(3) Estimated Waterfowl Days Use:	Average weekly populations x nu	mber of days present for each species.
(4) Production:	breeding areas. Brood counts s	hould be made on two or more areas aggregating 10% of the wing no basis in fact should be omitted.
(5) Total Days Use:	A summary of data recorded under	r (3).
(6) Peak Number:	Maximum number of waterfowl pre	sent on refuge during any census of reporting period.

- Interior Duplicating Section, Washington, D. C. 1953

(7) Total Production: A summary of data recorded under (4).

3-1750 Form NR-1 (Rev. March 1953)

WATERFOWL

REFUGE Pablo						MONTHS OF	September	TO _I	ecember	, 19 70
					(2)					
(1)	0/20 0/5 0	0/4 0/22 40	Weeks	of r	port	ing pe	r 1 o d 19/1-10/17:10	10 10/017	Obt. 10 M. 1	7 /2 22
Species	1 :			L :	5 5		7 :	8 = A 54T	452-10/311 1	10
Swans:	1	Market and a second	1	1	i	-	1	1	7 .	10
Whistling						15	15	15	15	10
Trumpeter										
Geese:										
Canada	940	940	940	1,305	1,305	1,215	1,215	665	665	665
Cackling							KIND OF BUILDING			
Brant										MENTE OF
White-fronted										
Snow										
Blue										
PROOF TOTAL CHESE	940	940	940	1,305	1,305	1,215	1,215	665	665	665
Ducks:	0.050	0.050	0.050	500	500					
Mallard	3,250	3,250	3,250	590	590	590	450	450	450	450
Black		100								
Gadwall	100	100	100							
Baldpate	2,525	2,525	2,525	260	260	260	155	155	155	150
Pintail	13,025	13.025	13,025	640	640	640	125	125	125	50
Green-winged teal	300	300	300	85	85	85	135	135	135	100
Blue-winged teal	100	100	100							
Cinnamon teal		70								
Shoveler Wood	50	50	50	-						
	10	10	10	5	5	5				
Redhead	300	300	300	140	140	140				
Ring-necked Canvasback	700	700	300			-	-			
Scaup	100 200	100	100	75	PC	77.5	5	5	5	-
Goldeneye	200	200	200	- 0	75	75	5	- 5	2	-
Bufflehead										
Ruddy							5	5	5	
Other										
TOTAL DUCKS:	19,960	19,960	19,960	1,795	1,795	1,795	880	880	880	735
					3,120	3,120	100	100	100	50
Coot:	6,000	6,000	6,000	3,120	3,120	3,120	100	100	-	

Cont. NI (Rev. March 1953

(Rev. March 1953)

WATERFOWL
(Continuation Sheet)

MONTHS OF September TO December 1970 REFUGE Paulo (7) Total Production: A summary of data recorded u(5)r (b (3) (4) Weeks of reporting period : Estimated : Production (0) Feak (1) abert 11: 12: 13: 14: 15: 16: 17: 18: days use : seen: total Species Swans: mary of data recorded undar (3), 525 Whistling Trumpeter Geese: 0 200 150 78,435 500 Canada Cackling Brant White-fronted Snow Blue TOTAL CESTS 500 SW 150 0 0 78,435 û 200 Ducks: Mallard 99,890 100 100 100 Black 2,100 Gadwall 63,490 Baldpate 239,940 Pintail 11,620 Green-winged teal 2,100 Blue-winged teal Cinnamon teal Shoveler 1,050 115 Wood Redhead 9-240 Ring-necked Canvasback 2,205 Scaup 5,95 Goldeneye 875 Bufflehead TEU Ruddy Other 100 100 488,880 TOTAL LUCES: 500 500 0 0 0 Total Days V 193,970 Coot: (OVET)

	(5) Days Use :	(6) (7) Peak Number: Total Product	cion SUMMARY
Swans	525	15	Principal feeding areas Aquatics in reservoir and
Geese 78	.435	1,305	Cereal grains in surrounding area.
Ducks 488	880	19,960	Principal nesting areas
Coots 193	970	6,000	
			Reported by Robert L. Barber
Fintail Green-winged	INS	TRUCTIONS (See Secs. 7531 th	rough 7534, Wildlife Refuges Field Manual)
(1) Species:			isted on form, other species occurring on refuge during the added in appropriate spaces. Special attention should be given and national significance.
(2) Weeks of Reporting	Period:	Estimated average refuge p	opulations.
(3) Estimated Days Use:	Waterfowl	Average weekly populations	x number of days present for each species.
(4) Production	n:	breeding areas. Brood cou	produced based on observations and actual counts on representative nts should be made on two or more areas aggregating 10% of the es having no basis in fact should be omitted.
(5) Total Day	s Use:	A summary of data recorded	
(6) Peak Number	er:	Maximum number of waterfow	l present on refuge during any census of reporting period.
(7) Total Prod	duction:	A summary of data recorded	under (h).

Interior Duplicating Section, Washington, D. C.
1953

REFUCE Follo

3 -1750a

3-1751 Form NR-(Nov. 19-2)

195 70

Refuge (ot ..to Apr Months of

(1)	(2		(;		(4			(5)		(6)
Species	First	Seen	Peak No	umbers	Last	Seen		Production		Total
Common Name	Number	Date	Number	Date	Number	Date	Number Colonies	Total # Nests	Total Young	Estimated Number
I. Water and Marsh Birds:										
Common Loon	20	4/29	20	4/29	Still	Present				
Red-mecked Grebe	5	4/29	5	429	*					
Rared Grobe	10	4/29	10	4/29	•					
Great Blue Neron	35	429	35	4/29	•					
II. Shorebirds, Gulls and Terns:										
Killdeer	10	4/29	10	4/29	54111	Present				
California Call	10	4/29	10	4/29						
Ring-Miller Oull	25	4/29	25	4/29	•					

(over)

1										
	(1)	(2)	1		(4)			(5)		(6)
III.	Doves and Pigeons: Mourning dove White-winged dove									
IV.	Predaceous Birds: Golden eagle Duck hawk Horned owl Magpie Raven Crow	1 4/29	1	4/29	Still P	resent				
					F	Reported	by.	ort L. Be	per	

INSTRUCTIONS

(1) Species:

Use the correct names as found in the A.O.U. Checklist, 1931 Edition, and list group in A.O.U. order. Avoid general terms as "seagull", "tern", etc. In addition to the birds listed on form, other species occurring on refuge during the reporting period should be added in appropriate spaces. Special attention should be given to those species of local and National significance. Groups: I. Water and Marsh Birds (Gavilformes to Ciconilformes and Gruilformes)

II. Shorebirds, Gulls and Terns (Charadriiformes)

III. <u>Doves and Pigeons</u> (Columbiformes)

IV. <u>Predaceous Birds</u> (Falconiformes, Strigiformes and predaceous Passeriformes)

(2) First Seen: The first refuge record for the species for the season concerned.

(3) Peak Numbers: The greatest number of the species present in a limited interval of time.

(4) Last Seen: The last refuge record for the species during the season concerned.

(5) Production: Estimated number of young produced based on observations and actual counts.

(6) Total: Estimated total number of the period concerned.

3-1751 Form MR-1A (Nov. 1945)

MIGRATORY BIRDS (other than waterfowl)

Refuge Pable Months of May to Sept. 19870

(1)	(2		(3		(4	•		(5)		(6)
Species	First	Seen	Peak Nu	mbers	Last	Seen	Number	roduction Total #	Total	Total Estimate
Common Name	Number	Date	Number	Date	Number	Date	Colonies'	"	Young	Number
. Water and Marsh Birds:										
Common Loon	Provious	Period	5	8/27	Still	Present				
Bared Grebe	Provious	Period	25	5/8	S till	Present				
Great Blue Heren	Provious	period	20	5/8	Still	Present				
					-					
Shorebirds, Gulls and Terns:										
Ring billed Gall	Previous	Period	300	8/27	Still	Present	1			
Spotted Sand Piper	1	5/8	25	7/27	Still	Present				
Lon, Snipe	200	5/15	200	5/15	Still	Present	je je	•		207-
Marbled Godwit	i:s	5/15	2	5/15	Still	Present	p.			
kikill Door	45	7/27	45	7/27	Still	Present				-

	(1)	(2)	Legil F	Tom Half	(4	4)		(5)		(6)
II.	Doves and Pigeons: Mourning dove	. 7 (ee E		ACT .	idek dont Barnvif	a gara			- 100		
	White-winged dove	,		4.1							
	i bi a abid	- mimor	1,190	1715.	N			= =			
IV.	Predaceous Birds:		e El	niga gr	100						
	Duck hawk										
	Horned owl				-	- M					
	Raven		TES. 80-1	L. L. K.	4	1					
	March Hark	1	5/8	1	5/8	Still	Present			*	
			* 15 10 1	1,575							
		4								E B	
		× .	,-						,		
							Reported	d by	8 B B		

INSTRUCTIONS

(1) Species:

Use the correct names as found in the A.O.U. Checklist, 1931 Edition, and list group in A.O.U. order. Avoid general terms as "seagull", "tern", etc. In addition to the birds listed on form, other species occurring on refuge during the reporting period should be added in appropriate spaces. Special attention should be given to those species of local and National significance. Groups: I. Water and Marsh Birds (Gavilformes to Ciconiiformes and Gruilformes)

II. Shorebirds, Gulls and Terns (Charadriiformes)

III. Doves and Pigeons (Columbiformes)

IV. <u>Predaceous Birds</u> (Falconiformes, Strigiformes and predaceous Passeriformes)

(2) First Seen: The first refuge record for the species for the season concerned.

(3) Peak Numbers: The greatest number of the species present in a limited interval of time.

(4) Last Seen: The last refuge record for the species during the season concerned.

(5) Production: Estimated number of young produced based on observations and actual counts.

(6) Total: Estimated total number of the species using the refuge during the period concerned.

3-1751 MIGRATORY BARDS Form NR-1A (other than waterfowl) (Nov. 1945) December Pablo Months of (5) evob begain ofid(6). (1)(2) (3)(4)Last Seen First Seen Peak Numbers Production Species Total Number Total # Total Estimated Number Date Colonies Nests Common Name Number Date Number Date Young Number Golden eagle Nawis I. Water and Marsh Birds: Horned owl 9/1 9/1 Period 5 5 Common Loon Previous Crow 9/1 9/1 5 Fared Grebe 5 Ospray 9/1 60 Still Present Great Blue Heron bert L. Barber Reported by INSTRUCTIONS Use the correct names as found in the A O.U. Checklist, 1931 Edition, and list group in A.O.U. ipecies: etc. "tern" terms as "seagull In addition II. Shorebirds, Gulls and Terns: ebbs ed bluods loineg galinoger ett gairub on refuge form, other species o l attention should be gived to those species of local and Nation priate space gem Killacerons semonthropo o Frevious Period aby 50 de 9/1 10/26 significance Terms (Charadriiformes) 9/1 Common Snipe (woming) 200 11/23 Strigi ormes and predaceous rds (Falconiformen 9/1 Marbled Godwit 25 9/1 1 season concerned. The first re First Seen Spotted Sandpiper 10/10 bejimi The greatest o Lavieji eak Numbers 300 10/26 Ring-billed Gull for the species during the season The last refuge record concerned ast Seen Estimated number of young produced based on observations and actua roduction Estimated total number of the syreyo; using the refuge during the period concerned.

(1)	(2)	206	RATORY L	TM (4	<u>.</u>)		(5)		A(6)
III. Doves and Pigeons:	Decemb	700	orfowl) of Soptes	than wat Months	(other		0,	ge Pak	Refu	Nov. 1945
Mourning dove										
(White-winged dove	a .		(4 Last	aredi	Peak Nu		(2)		(1)	
otal # Total Estimate	- T2ImpK	9/16	2	9/16	1	10/26	First		Species	
IV. <u>Predaceous Birds</u> :		Date	Number	Date	Number	Date	табший		mon Name	roO
Golden eagle Duck hawk Horned owl								Birds:	and Marsh	I. Water
Magpie Raven			3	1/6	.5	Perhod	Previous		noed	6-68-5
Crow		9/1	5		. 5		92		ndoni	Isomilli
Ospray	1	9/1	i ma	9/1	d.	9/1			Ans Here	3000
									,	
	1 3 1									
	1					Reporte	d by	bert L.	Barber	

INSTRUCTIONS

(1) Species:

Use the correct names as found in the A.O.U. Checklist, 1931 Edition, and list group in A.O.U. order. Avoid general terms as "seagull", "tern", etc. In addition to the birds listed on form, other species occurring on refuge during the reporting period should be added in appropriate spaces. Special attention should be given to those species of local and National significance. Groups: I. Water and Marsh Birds (Gavilformes to Ciconiiformes and Gruilformes)

II. Shorebirds, Gulls and Terns (Charadriiformes)

III. <u>Doves and Pigeons</u> (Columbiformes)

IV. <u>Predaceous Birds</u> (Falconiformes, Strigiformes and predaceous Passeriformes)

Scotted Sandpler

(2) First Seen: The first refuge record for the species for the season concerned.

3) Peak Numbers: The greatest number of the species present in a limited interval of time.

(4) Last Seen: The last refuge record for the species during the season concerned.

(5) Production: Estimated number of young produced based on observations and actual counts.

(6) Total: Estimated total number of the species using the refuge <u>during the period</u> concerned.

3-1750b Form NR-1B

UNITED STATES Form NR-1B DEPARTMENT OF THE INTERIOR (Rev. Nov. 1957) FISH AND WILDLIFE SERVICE DEPARTMENT OF THE INTERIOR BUREAU OF SPORT FISHERIES AND WILDLIFE

WATERFOWL UTILIZATION OF REFUGE HABITAT

Refuge Pable	For 12-month period ending August 31, 1920							
Reported by R. L. R.	Title _	Asst. Ref.	Nos					
(1) (2) Area or Unit Habitat Designation Type Acreage		(3) Use-days	(4) Breeding Population	(5) Production				
Crops Upland Marsh Water Total Crops Upland Marsh Value Marsh Value Marsh Value Marsh Value Marsh Marsh Marsh Marsh Mater Mater Marsh Marsh Mater Mat	Ducks Geese Swans Coots Total	286, hos 99,995 77 72, h50 h58,927	007 HC 100 CHAMPAGE AND	12 0 15 96				
Crops Upland Marsh Water Total	Ducks Geese Swans Coots Total							
Crops Upland Marsh Water Total	Ducks Geese Swans Coots Total							
Crops Upland Marsh Water Total	Ducks Geese Swans Coots Total							
Crops Upland Marsh Water Total	Ducks Geese Swans Coots Total		GEN COD GEN					
Crops Upland Marsh Water Total	Ducks Geese Swans Coots Total		Complete Com					
Crops Upland Marsh Water Total	Ducks Geese Swans Coots Total	design control	CD 60 CD 60 CD 60 GD 60 CD 60	COLOR				

(over)

Refuge Mont

Months of to to 19 70

(1) Species	(2) Density	in rea	(3 You Produc	ng ced	(4) Sex Ratio	Re	(5) emova	ls	(6) Total	(7) Remarks		
Common Name	Cover types, total pacreage of habitat B		Number broods obs'v'd.	Estimated Total	Percentage	Hunting	For Restocking	For Research	Estimated number using Refuge	Pertinent inform specifically re List introduction	quested.	
drods drods pheasant dos		laren d , hos W ni b stjimi stora rebnu	g edd legud Jell gess Lyms	ouro Lour Lour Ligh Evid	ch as to obs reverting ag dard type sy e possible. n represents eas should b	reidw res c	rote i don i de a la como i don i do	d be	150			
atm	oo fautsa bna enoti	SVIDEG	noqu	bess	produced, b	peror Liber	to t	redam Lidadi	Estimated in represe	PONOUGHY DINOY	(8)	
no as	, etc. Include da	Jassan	iey, pl	tur	wily to wild	min labi	g seli	iqqs (This column			
	.bolreq droger edi	galan	bevor	187. 1	each categor	nt :	edawa	Ledv	3 edsolbnI			
Ny	at period. This m store during certain	de rep	gnin gnin	ge di rati	eles end gal	ig si	daum raint	lado:	Retimated include re			
Also	covered in survey.	area ally r	ns no	dalu a Jo	etermine pog nformation m	o od dna	bear aldre	boriji g rej	Indicate e			
				4				Į				
				beeu	ed bluode be	PISVI	o boj	and a	able to th	ilgas samuloc yin		
int												

INSTRUCTIONS

Form NR-2 - UPLAND GAME BIRDS.*

(2)

DENSITY:

(1)	SPECIES:	lise	correct	common	name.
(1)	OLECTED!	036	COLLACO	COMMO	Hame.

- Applies particularly to those species considered in removal programs (public hunts, etc.). Detailed data may be omitted for species occurring in limited numbers. Density to be expressed in acres per animal by cover types. This information is to be prefaced by a statement from the refuge manager as to the number of acres in each cover type found on the refuge; once submitted, this information need not be repeated except as significant changes occur in the area of cover types. Cover types should be detailed enough to furnish the desired information but not so much as to obscure the general picture. Examples: spruce swamp, upland hardwoods, reverting agriculture land, bottomland hardwoods, short grass prairie, etc. Standard type symbols listed in Wildlife Management Series No. 7 should be used where possible. Figures submitted should be based on actual observations and counts on representative sample areas. Survey method used and size of sample area or areas should be indicated under Remarks.
- (3) YOUNG PRODUCED: Estimated number of young produced, based upon observations and actual counts in representative breeding habitat.
- (4) SEX RATIO: This column applies primarily to wild turkey, pheasants, etc. Include data on other species if available.
- (5) REMOVALS: Indicate total number in each category removed during the report period.
- (6) TOTAL: Estimated total number using the refuge during the report period. This may include resident birds plus those migrating into the refuge during certain seasons.
- (7) REMARKS: Indicate method used to determine population and area covered in survey. Also include other pertinent information not specifically requested.

^{*} Only columns applicable to the period covered should be used.

Refuge Pablo

anths of my to sept. , 19 7

(1) Species	(2) Density		(3 You Produ) ng ced	(4) Sex Ratio	R	(5) emova	ls	(6) Total	(7) Remarks
Common Name	Cover types, total acreage of habitat	Acres per Bird	Number broods obs'v'd.		Percentage	Hunting	For Restocking	For Research	Estimated number using Refuge	Pertinent information not specifically requested. List introductions here.
Ring-necked Pheasant	670 a upland		0	100					900	

Refuge Pable Months of September to December , 19 70

(1) Species	(2) Density	(3) Young Produced		(4) Sex Ratio	R	(5) emoval	ls	(6) Total	(7) Remarks			
Common Name	Cover types, total acreage of habitat	Acres per Bird	Number broods obs'v'd.	To tal	Percentage	ng	For Restocking	For Research	Estimated number using Refuge	Pertinent infor specifically r List introducti	equeste	d.
Pheasant	670 a. upland	land, led in led	tailei the the stisic gures comes	oe d gric ymbo Fi Fi	pes should ach as to ob reverting a ndard type s re possible. The second tess should	ods, Sta whe	Cor not exrdm etc. usec d cor	ypes, and l and l rie, ld be	250		,	
stou	tions and actual or	viasdo	noqa be	08,50	produced,					YOUNG PRODUCED:	(3)	
ta on	s, etc. Include da	heasant	I fantz	uð É					This column	SEX RATIO:	(7)	
	.boireq freque ent	garub	bevomen	z Vi	each catego	ni v	dnum	Lado	Indicate t	REMOVALS:	(5)	
ay n seasons.	ort period. This r efuge during certai	the rep	during the in	ege	sing the ref has those mi	er u	Mwn Lid di	total	Retimated include re	TOTAL:	(9)	
Also	covered in survey.				determine po information					REMARKS:	(7)	
			a DE	use	ed biwods be	Tevo	bol	teq s	cable to ti	nly columns appli		

Form NR-2 - UPLAND GAME BIRDS.*

(1) SPEC	IES:
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Use correct common name.

(2) DENSITY:

Pertinent information not

specifically requested.

Applies particularly to those species considered in removal programs (public hunts, etc.). Detailed data may be omitted for species occurring in limited numbers. Density to be expressed in acres per animal by cover types. This information is to be prefaced by a statement from the refuge manager as to the number of acres in each cover type found on the refuge; once submitted, this information need not be repeated except as significant changes occur in the area of cover types. Cover types should be detailed enough to furnish the desired information but not so much as to obscure the general picture. Examples: spruce swamp, upland hardwoods, reverting agriculture land, bottomland hardwoods, short grass prairie, etc. Standard type symbols listed in Wildlife Management Series No. 7 should be used where possible. Figures submitted should be based on actual observations and counts on representative sample areas. Survey method used and size of sample area or areas should be indicated under Remarks.

(3) YOUNG PRODUCED:

Estimated number of young produced, based upon observations and actual counts in representative breeding habitat.

(4) SEX RATIO:

This column applies primarily to wild turkey, pheasants, etc. Include data on other species if available.

(5) REMOVALS:

Indicate total number in each category removed during the report period.

(6) TOTAL:

Estimated total number using the refuge during the report period. This may include resident birds plus those migrating into the refuge during certain seasons.

(7) REMARKS:

Indicate method used to determine population and area covered in survey. Also include other pertinent information not specifically requested.

^{*} Only columns applicable to the period covered should be used.

Refuge Pable Year ending April 30, 1970

Species	(2) Density				(3) ovals			ם	isposi	(4) tion of	Fure			(5)
								Shar	e Trapp	ping	nge	ted		Total
ommon Name	Cover Types & Total Acreage of Habitat	Acres Per Animal	Hun ting	Fur Harvest	Predator	For Re- stocking	For Re-	Permit Number	Trappere	Refuge	Total Refuge Fars Shipped	Furs Donated	Fure Destroyed	tion
Seadow House Deer House Otriped Skunk Bedger Chlumbian Groundsquirral Boyote Ruskrat tink Beaver	1,807 a. marsh & water													Low Low Roderat 2 30 Low 2

REMARKS:

Reported by Robert L. Barber

3-1758 Form NR-8 (Rev. Jan. 1956)

Fish and Wildlife Service Branch of Wildlife Refuges

CULTIVATED CROPS - HAYING - GRAZING

Cultivated Crops		ittee's Harvested		rnment's Si		Return	Total Acreage	Cover	Manure, and Water- rowsing Crops	Total
Grown	Acres	Bu./Tons	Acres	Bu./Tons	Acres	Bu./Tons	Planted		nd Kind	Acreage
GRATHE CHE AGEL*	taported under Culti	a trop results from a trops and trops and trops and trops and trops and trops and trops are trops are trops and trops are trop	one siy schasse, bysp	* All by t	permits ne Bure	a re iss ue u of Indi	l and all m on Affaire,	Ronan,	are collected Montana.	đ
	nades.	oropada da	qafi – j	ung or a	sdod and To	teles of	the service of the se	Fallow	Ag. Land	CHOS:
. of Permittees:	: Agricultur	al Operation	ons Non		Haying	Operations	Rone	177	Ag. Land	1
. of Permittees: Hay - Improved (Specify Kind)	: Agricultur Tons Harvested	al Operation	Cash Reven		Haying GRAZING	Operations Numl	per	177	Part of the second seco	ACREAGE
Hay - Improved	Tons	Din or	Cash	ue	5 5 6	Numi	per	Grazi	ng Operations	
Hay - Improved	Tons	Din or	Cash	1. 2.	RAZING	Numl Anir	per	Grazi:	ng Operations Cash Revenue	ACREAGE
Hay - Improved	Tons Harvested	Din or	Cash	ue 1.	Cattle Other	Numl Anir	per mals	Grazi: AUM'S	Cash Revenue	ACREAGE

Report Form NR-8 should be prepared on a calendar-year basis for all crops which were planted during the calendar year and for haying and grazing operations carried on during the same period.

Separate reports shall be furnished for Refuge lands in each county when a refuge is located in more than one county or State.

Cultivated Crops Grown - List allgrops planted, grown and harvested on the refuge during the reporting period regardless of purpose. Crops in kind which have been planted by more than one permittee or this Service shall be combined for reporting purposes.

Permittee's Share - Only the number of acres utilized by the permittee for his own benefit should be shown under the Acres column, and only the number of bushels of farm crops harvested by the permittee for himself should be shown under the Bushels Harvested column. Report all crops harvested in bushels or fractions thereof except such crops as silage, watermelons, cotton, tobacco, and hay, which should be reported in tons or fractions thereof.

Government's Share or Return - Harvested - Show the acreage and number of bushels harvested for the Government of crops produced by permittees or refuge personnel. Unharvested - Show the exact acreage and the estimated number of bushels of grain available for wildlife. If grazing is made available to waterfowl through the planting of grain, cover, green manure, grazing or hay crops, estimate the tonnage of green food produced or utilized and report under Bushels Unharvested column.

Total Acreage Planted - Report all acreage planted, including crop failures.

Green Manure, Cover and Waterfowl Grazing Crops - Specify the acreage, kind and purpose of the crop. These crops and the acreage may be duplicated under cultivated crops if planted during the year, or a duplication may occur under hay if the crop results from a perennial planting.

Hay - Improved - List separately the kinds of improved hay grown. Annual plantings should also be reported under <u>Cultivated Crops</u>, and perennial hay should be listed in the same manner at time of planting.

Total Refuge Acreage Under Cultivation - Report total land area devoted to agricultural purposes during the year.



Brownie Troop 3512
L. to R.-Babe May, Foreman; Jack Lampshire, Maintenanceman;
Bob Barber, Ass't. Mgr.; Grant Hogge, H.D. Mechanic; Ed
Krantz, Maintenanceman; Ernie Kraft, Maintenanceman III;
Marvin Kaschke, Refuge Manager; Bob Middlemist, Maint'man



Something New
Susan McCollum filled the vacancy left by former
Secretary, Sharon Scammon, who transferred to Wildlife Services in Denver.



DIANTHUS ARMERIA
(Pink)
1970 was an unusually good year for
this plant, and the range was
literally "in the pink."



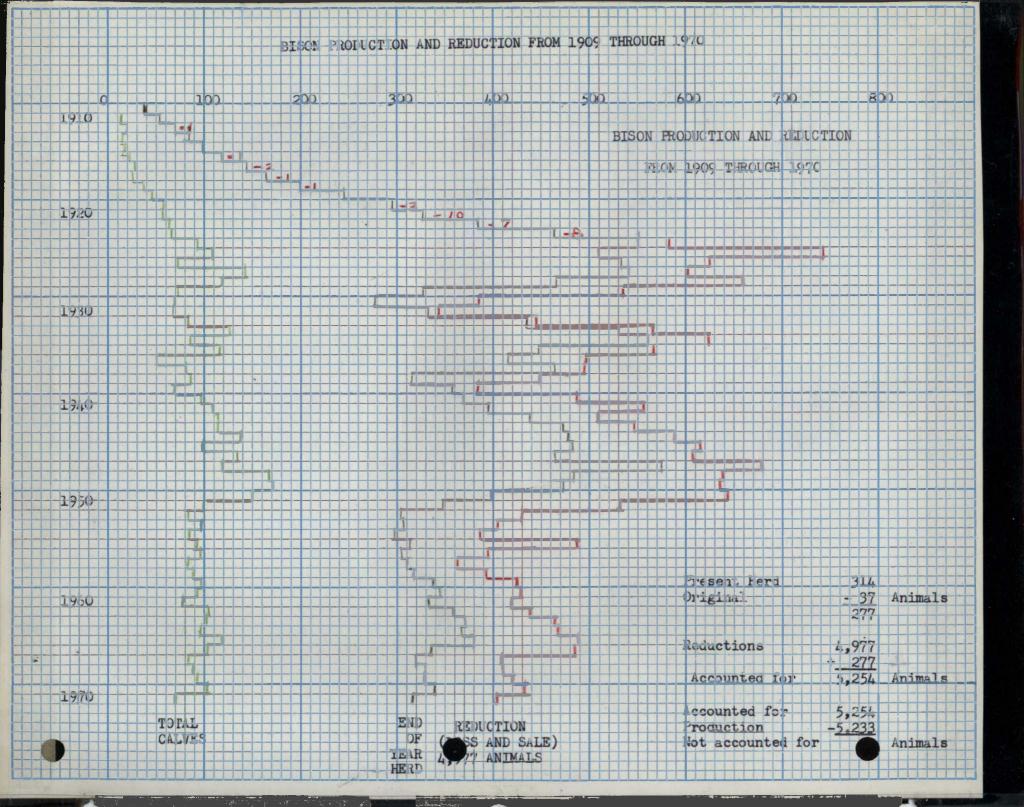
ORTHOCARPUS TENUIFOLIUS
(Owl Clover)



Newly decorated office as seen when entering the front door.



As seen from the other side, "No you can't ride the buffalo or pet the golden eagle.





Corrigated metal roofs were sand-blasted and sprayed with dark green fiberglass texture coating in an effort to prevent fading, which has been a problem with all paints used to date.



Residing of the frame barn with 26-gauge baked enamel siding should help reduce maintenance costs.



Highlight of the year was a tour with 37 foreign conservationists from the Sixth International Shortcourse on the Administration of National Parks and Related Reserves.



Bob Barber, making a point and a hit as he explains the National Bison Range program.



The Job Corps constructed picnic shelter provides shade during a discussion period.



Gunther Zwanzig - "a true Deutschman," exhibits native country's favorite pastime.



We were also honored to have Ken Grant, Administrator of SCS, for a tour.



Doctor Ray Keyser, DVM performs a "post" on buffalo bull found dead in Upper West range. Results were inconclusive.

Dog tape worm cysts (taenia hydatigena) found in abdominal cavity of a White-tailed deer. These cysts were common in most deer slaughtered a few years ago. However, they are becoming more rere in recent years, in spite of a small increase in coyote population.

"Chittlins" anyone?





Scientist John Craighead, Vince Yovonne, and Harry Reynolds install the collar containing telemetry equipment for the NASA -Smithsonian satallite tracking project.



As soon as the elk was down the NASA team (all 17) including a publicity staff of about six, started the collar installation.



Oh no!: What happened to me while I slept??



I guess, in the interest of science I'll cooperate. This is even worse than being in the movies.



The antler pile was moved and restacked near the elk display pasture, releiving the traffic jam it always caused at the original location, and tying it in with elk interpretation.



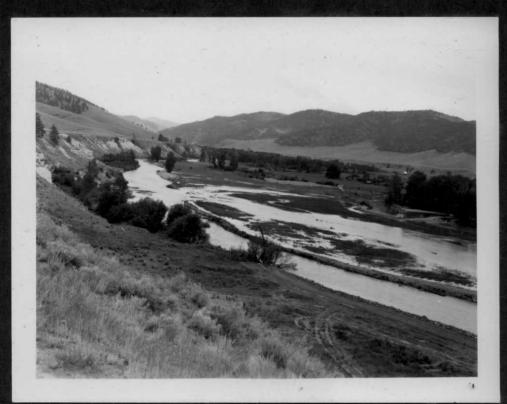
Nearly 300 riders participated in the annual Saddle Club ride.



"Highpoint" provides a scenic view of Falthead Valley and the beautiful Mission Mountains. Riders of all ages participated and enjoyed the ride. Even the old time bow-legged cowboy.



This is the log jam that supposedly caused flooding below. It is located over 1/2 mile upstream from the lower photo.





While investigating flood damage as requested by local ranchers, we found they had started farming an unfenced corner of the Bison Range.



17 . NAL

This junk yard is located outside the Refuge boundary, but is an eyesore from one tour route observation point.



IT . NAL .

The County Sanitarian required the rat infested area be cleaned up. Of course, county equipment and manpower were used to bury the mess.



"Buffy" has a mid-morning snack, growing babies must eat often.

Antelope photographed by Dave Kitchen, Univ. of Michigan, while conducting his behavior study. See report in back for further details and pictures.





Eight new nesting islands were dozed up during low water period of the winter. Each island was topped with a hay-bale platform.



Loose hay was tied on the bales to provide nesting materials. At least two of the islands produced broods, and birds showed some interest in all of the new sites.